

Technical Support to the South African Department of Labour (DOL),
Labour Centres (LCs) and Sector Education Training Authorities (SETAs)

Research and Development of a Qualifications Framework, Qualifications and Unit Standards for the Primary Agricultural Sector

Submitted to:

***Primary Agriculture Sector Education and Training
Authority (PAETA)***



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Department of Labour

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- The SGB for Primary Agriculture for providing us with support throughout the process.

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ACRONYMS

CEO	Chief Executive Officer
DoL	Department of Labour
ETQA	Education Training Quality Assurance
EXCO	Executive Committee
HRM	Human Resource Management
Khulisa	Khulisa Management Services
NGO	Non-Governmental Organisation
NQF	National Qualifications Framework
NSB	National Standards Body
ODC	Other Direct Costs
PAETA	Primary Agriculture Education Training Authority
SAQA	South African Qualifications Authority
SGB	Standards Generating Body
SME	Subject Matter Expert
USAID	United States Agency for International Development

1. Background to the Project

During 2001, the Primary Agriculture Education and Training Authority (PAETA) was approached by the Department of Labour (DoL) with the request to put forward proposals for possible support by the United States Agency for International Development (USAID). At the time the proposals were limited to two critically important issues which could not be funded from PAETA resources. These were the:

- Development of qualifications and the writing of unit standards for the primary agriculture sector; and
- Development of capacity within our broader stakeholder definition with regards to skills development and related legislation.

Both proposals were accepted by USAID.

By approximately August 2002, the initiative from USAID was re-activated with an enquiry whether PAETA was still interested in the USAID support and if the previous priorities remained intact. This enquiry was re-discussed by the Governing Board and Executive Committee (EXCO) and PAETA reaffirmed its commitment to the two priorities.

The next development was that PAETA were introduced to the Development Associates Consortium, and Khulisa Management Services as the onsite project managers, as the USAID appointed contractors to execute the said work. During these introductory meetings PAETA was informed that the amount of funding was reduced and that the stakeholder capacity building priority was removed from the support framework of USAID.

It was confirmed that a total of 150 consultant days were available for the execution of the development of a qualifications framework, qualifications and unit standards from the National Qualifications Framework (NQF) levels 1-4, as well as a significant amount of other direct costs (ODC) money to fund accommodation, travel, workshop expenses, etc.

During further discussions between PAETA and the Development Associates consortium, it was agreed that the project would include qualifications and unit standards at NQF level 5 and that PAETA would directly budget and fund the additional level 5 work.

1.1. A Framework for the Writing of Unit Standards

Whilst PAETA, through its Standards Generating Body (SGB) for Primary Agriculture as well as the SGB for Ornamental Horticulture and Landscaping, commenced with the design of qualifications and the writing of some unit standards, extensive work still needed to be done in this field. In order to complete the work within the time available (and perhaps sooner) the following planning framework was developed.

Theoretically there were two options/approaches available to consider the farming industry at large, namely to:

- Apply a commodity delineation to the sector and thus focus on the broad definition of agronomy, horticulture, ornamental horticulture and animal husbandry; or
- Consider the sector within a functional delineation namely, establishing, production, harvesting, storage and processing, transport and marketing.

In order to clarify the best route to take (which would also provide the framework for the development of qualifications and unit standards), the process was initiated with a larger

stakeholder workshop with subject matter experts (SMEs) from each of the commodity groupings.

It was envisaged that the outcome of this intervention would be that a broad framework for qualifications and unit standards would be developed as well as a logical structure of the approach to be followed (commodity based or functionally based or some combination thereof). A report, confirming the approach to the writing of unit standards and setting the parameters for the rest of the process, was compiled after the workshop and circulated to all those involved for adjustment and ratification. (See Appendix A)

Once the framework had been established and “contracted”, the consultants commenced working with sub-groups to develop qualification frameworks and the necessary unit standards ranging from NQF 1 to NQF 5.

1.2. A Facilitated Process

Previously, unit standard writing processes in the primary agricultural sector have been structured along the line of groups working separately in each of the commodity groupings, at different venues and on different dates. The result has been limited cohesion and integration and in some cases, duplication of unit standard writing processes and outcomes.

Therefore, the process suggested to and accepted by USAID and the Development Associates consortium was a facilitated process. Two consultants were appointed to facilitate in tandem, working at the same time and venue, in order to ensure a comprehensive framework and maximum integration of unit standards within the framework. Particularly so in this instance where both consultants understood the sector and SAQA processes but with Roelof de Villiers being more experienced in agricultural practices and management and Beatrice Enslin in SAQA related practices and processes.

1.2.1. Subject Matter Experts

During a series of 18 (including the Inception Workshop) workshops, 94 SME’s were invited to undertake the development of Qualifications and Unit Standards. The list of SME’s has been attached as Appendix B.

1.2.2. Committees Involved

The following committees in the primary agricultural sector were also involved in the process through participation of members:

- PAETA Learnership committee (equal employee/employer representation).
- Executive Committee of PAETA governing board.
- PAETA Education Training Quality Assurance (ETQA) committee (equal employee/employer representation).

2. Details of Activities

2.1. Activity 1: Inception Workshop

2.1.1. Objective

In order to clarify the best route to take (which also provided a coherent framework for the development of qualifications and unit standards), the process was initiated with a larger stakeholder workshop bringing together Subject Matter Experts (SMEs) from a wide range of commodity groupings in the primary agriculture sector.

2.1.2. Consultation with SMEs and Agricultural Sub-Sectors

An inception workshop of four days was organised as the starting point of the project. The aim of the workshop was to:

- Explore and map the primary agricultural landscape;
- Use this landscape as a basis for the qualifications framework; and
- Determine and agree on principles emanating from the above processes as a guideline for the development of the qualifications framework.

SME's were identified to represent as many primary agricultural sub-sectors as possible with the view to develop a broad overview of the primary agricultural sector. SME's were selected based on criteria accepted by the members of the steering committee.

The following sub-sectors and organisations were represented:

- Agricultural education,
- Agriculture and human resources,
- Agronomy,
- Animal improvement,
- Animal production,
- Aquaculture,
- Citrus,
- Cut flowers,
- Cotton,
- Deciduous fruit,
- Economics / business planning / flower export council / trade and investment,
- Food safety & quality assurance / packaging / grading /classification of products,
- Grain crops,
- Grapes,
- Herbs and spices / alternative crops,
- Hydroponics,
- Land-use and soil management,

- Medicinal plants,
- Organics,
- Ornamental plants,
- Potatoes,
- Red meat producers, emerging –including pig production,
- Rural development / commercial farmers,
- Sugar cane,
- Soil science,
- Sustainable agriculture,
- Table grapes,
- Vegetables,
- Viticulture,
- Wild flower harvesting,
- Wine growers,
- National Department of Agriculture,
- PAETA, and
- Department of Education – national curriculum statements for agriculture.

Furthermore, representatives of the following SGBs attended the workshop:

- Extension Services;
- Ornamental Horticulture (invited to nominate five members); and
- Primary Agriculture (invited to nominate five members).

2.1.3. Outcomes and Deliverables

The outcome of this intervention was the development of a coherent broad framework for qualifications and unit standards as well as a logical structure of the approach to be followed. A functional delineation was followed. This provided the basis for the commencement of the work of the sub-groups to develop a qualification framework and the necessary unit standards.

The deliverable of this workshop, was a report indicating the way forward (refer to Appendix A).

2.2. Activity 2: Agreement on the Qualification Framework and the Approach to Standards Writing

2.2.1. Objective

A second workshop was held on 15 and 16 October 2003 involving key role players and interest groups in the Primary Agriculture sector. A total of 28 participants attended the workshop. The objective of the workshop was to:

- Finalise and agree on the qualification framework, and

- Obtain agreement from stakeholders on the way forward.

2.2.2. Outputs and Deliverables:

The following outputs were achieved:

- The Qualifications Framework, developed during the first workshop was analysed and discussed and participants made their final inputs regarding the framework;
- The report on the inception workshop was updated to include the suggestions and comments from participants; and
- The participants agreed on the approach and the way forward to develop the necessary qualifications and unit standards.

SME's were identified to participate during the rest of the workshops. (See Appendix C for a schedule of workshops).

Categories of competencies were analysed and agreed upon and groups were established to participate in the standards writing process. The categories and sub-categories of the groups were:

GROUP 1: FUNDAMENTAL UNIT STANDARDS with a focus on:

- Information Management
- Sustainable environment

GROUP 2: AGRI-BUSINESS which included:

- Inputs, resources and sourcing
- Production / conversion
- Marketing and delivery
- Support (Financial and HR)
- Enterprise planning
- Planning (strategic, business, risk)

GROUP 3: AGRICULTURAL PRACTICES which included:

- Good Agricultural Practices
- Natural Resources Management
- Farm layout, site selection and area wide planning
- Equipment, technology, implements and infrastructure

GROUP 4: ANIMAL PRODUCTION which included:

- Anatomy and physiology
- Nutrition and feeding
- Breeding
- Animal health

GROUP 5: PLANT PRODUCTION which included:

- Production planning

- Anatomy and physiology
- Soil and nutrition
- Propagation
- Irrigation
- Seeds, vegetative, seedlings
- Manipulation
- Plant protection
- Harvesting
- Establishment

2.3. Activity 3: Writing of Fundamental and Core Unit Standards

2.3.1. Objective

The process of writing unit standards started in November 2003 with each of the above groups meeting for a two-day workshop, followed by a subsequent two-day workshop in January/February 2004.

The objectives of the first cycle of workshops were to:

- Capacitate participants,
- Develop a titles matrix for each NQF level (1-5), and
- Write two unit standards per sub-group.

The objectives of the second cycle of workshops were to:

- Revisit the work of the first cycle, and
- Develop the last three unit standards per sub-group.

2.3.2. Outputs and Deliverables:

During the two cycles of workshops, approximately 150 fundamental and core unit standards were developed on the NQF levels 1-5 in the following agricultural areas:

- Fundamental aspects,
- Agri-business,
- Agricultural practices,
- Animal production,
- Plant production.

The approach that was followed (agreed upon during the workshop in October 2003) was to develop generic unit standards. The generic nature of the unit standards would allow it to be contextualised and applied in a wide range of commodities and agricultural commodities. Generally speaking, the unit standards were of good quality. The consultant team prepared the first and second draft of unit standards.

Furthermore, SME's were identified for the February 2004 workshops.

2.4. Activity 4: Consolidating Fundamental and Core Unit Standards

2.4.1. Objective

The purpose of the consolidation workshop in February 2004 was to look at the unit standards holistically across all levels and all categories to determine:

- Duplication,
- Gaps,
- Consistency across levels,
- Consistency of credit allocation, and
- Composition of the qualifications.

2.4.2. Outputs and Deliverables:

As a result of the above workshop, the unit standards were reworked by the consultant team and selected participants identified to fill the gaps and address the issue of duplication. Furthermore, agreement was reached on the basis of credit allocation. The agreement on a comprehensive unit standards matrix at each level, served as basis for the composition of the qualifications.

2.5. Activity 5: Writing of Elective Unit Standards

2.5.1. Objective

Two more workshops took place during February and March 2004 respectively.

The purpose of the first and second workshops was to look at whether the specific needs of specific commodities and/or production processes were covered and to develop more specific unit standards, where necessary.

The first workshop involved SME's in the following sub-fields:

- Organic production,
- Permaculture systems,
- Hydroponic production,
- Horticulture,
- Eco/Agri-Tourism,
- Natural Resources Harvesting,
- Natural Resource Management,
- Agronomy,
- Biotechnology.

The second workshop involved SME's in the following sub-fields:

- Small stock,
- Large stock,
- Dairy,

- Pigs,
- Game,
- Aqua / Mari-culture
- Commercial Insects

2.5.2. Outputs and Deliverables:

During this phase, the following deliverables were completed and prepared for submission to the SGB for Primary Agriculture:

- A total of 190 unit standard drafts were developed, and
- A total of 12 qualifications were developed.

2.6. Activity 6: Submission of Qualifications and Unit Standards

2.6.1. Objective

The last phase of the project focussed on the finalisation and preparation of the above developed qualifications and unit standards for submission to, firstly the SGB and upon their approval, submission to SAQA.

By mid-April 2004, the qualifications and unit standards were distributed to all the SGB-members to put them in a position to prepare for considering the qualifications and unit standards at a meeting scheduled for 4-5 May 2004.

It was proposed that the SGB evaluate and approve the qualifications and unit standards in terms of the following:

- Agreement had to be reached amongst SGB members in terms of the credit ratings of each qualification and all the unit standards.
- All qualifications had to be considered in terms of their scope and complexity.
- The titles of all Unit Standards had to be considered and changed if necessary.
- The final unit standard matrixes had to be included in the unit standards (this could not be completed prior to completion of the above three activities by the appointed SGB team)
- The Government Gazette issue of qualifications had to be developed (this could not be completed prior to completion of the above three activities by the appointed SGB team).

2.6.2. Outputs and Deliverables

It was decided by the SGB to delegate the above tasks to a small sub-committee, which would be facilitated by the consultants and included at least two SGB-members, namely

- Mr Fransa Ferreira and
- Mr Grant Kobus.

This sub-committee convened on 26 – 28 May 2004 to attempt the above tasks. The consultants included the following persons to be of assistance to the two SGB-members:

- Ms Valencia Fourie (format editing),
- Mr Robert Post (content editing),
- Mr Vincent Victor (grammar editing).

2.7. Activity 7: Submission to SAQA

2.7.1. Finalisation

The final step in concluding the project was to submit the qualifications and unit standards to SAQA.

- The qualifications and unit standards from NQF level 1-5 were submitted to SAQA on 18 June 2004.
- Comprehensive comments were received from SAQA on Friday, 25 June 2004 (at 16H30).
- The consultant team incorporated the comment and resubmitted the product to SAQA on Monday, 28 June 2004 (at 08H30).

2.7.2. SAQA Process

It was confirmed by SAQA that:

- The qualifications (Government Gazette version) are in the process of being prepared for publication in the Government Gazette for a period of 30 days for public comment, and that
- It is envisaged that the qualifications and unit standards will be tabled for approval during August 2004. (See Appendix D, E and F for the process report submitted to SAQA, Matrix of Unit Standards and List of Qualifications from NQF Level 1 – 5).

3. Conclusions

Finally, the following conclusions can be drawn:

- ❖ A representative process was followed throughout the project. This ensured the involvement of a large group of stakeholders representing various sub-sectors in the primary agriculture. It furthermore ensured that the needs of the various sub-sectors of the industry were addressed in the composition of the qualifications, the unit standards and the fields of specialisation.
- ❖ The facilitated process, designed as a reiterative process, ensured the coherent structuring of the qualifications framework, qualifications and unit standards.
- ❖ Unit standards were developed as generically as possible with the purpose of being applicable to a wide range of agricultural activities and commodities.
- ❖ Approximately 94 SME's attended the process and a wide range of organisations were represented. This ensured not only the capacity building of participants, but also a transfer of knowledge about the NQF and its application at the "coal face".
- ❖ Identification of and attendance by SME's in some cases posed a problem. Non-attendance resulted in certain areas of specialisation not being covered sufficiently, i.e. agronomy, horse breeding, etc. However, qualifications could be submitted without these elective unit standards.

- ❖ Informal feedback from the industry is positive and indicates that the qualifications and unit standards will address a huge void and need in the industry.
- ❖ During the process the need for additional qualifications in Game Farming and Natural Resource Management was identified and expressed by participants.

4. Recommendations

Based on the above, the following is recommended:

- ❖ Place the draft qualifications and draft unit standards on PAETA's web page in order to facilitate as wide access as possible to support the public comment process.
- ❖ Establish working groups in various areas, a point which emerged during discussions at the workshop. However, these fall outside of the scope of this project and should be referred to the appropriate forums:
 - Career pathing working group;
 - Holistic farming working group;
 - Agricultural research working group; and
 - Agricultural extension services.
- ❖ Develop a manual for training providers and assessors to facilitate the interpretation and conceptualisation of unit standards.
- ❖ Identify and facilitate small working groups to develop unit standards in the fields of specialisation such as agronomy, horse breeding, etc.
- ❖ Develop further qualifications in the areas of Game Farming, Food Safety and Natural Resource Management.

Technical Support to the South African Department of Labour (DOL),
Labour Centres (LCs) and Sector Education Training Authorities (SETAs)

**APPENDIX A
DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK,
QUALIFICATIONS AND UNIT STANDARDS FOR THE PRIMARY
AGRICULTURAL SECTOR:
REPORT ON THE INCEPTION WORKSHOP**

July 2003

Submitted to:

PAETA



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Acronyms

CEO	Chief Executive Officer
DoL	Department of Labour
HRM	Human Resource Management
NGO	Non-Governmental Organisation
NQF	National Qualifications Framework
NSB	National Standards Body
PAETA	Primary Agriculture Sector Education Training Authority
SAQA	South African Qualifications Authority
SGB	Standards Generating Body
SME	Subject Matter Expert
USAID	United States Agency for International Development

Disclaimer

Development Associates, Inc. and its subcontractors, Khulisa Management Services and Centre for Education, Policy Development (CEPD) have prepared this report. The findings and opinions expressed in this report are solely those of the authors and do not necessarily represent those of USAID/South Africa, or the South African Department of Labour (DOL). Similarly, any errors or omissions are the responsibility of the authors.

1. BACKGROUND

During 2001 the Primary Agriculture Education and Training Authority (PAETA) was approached by the Department of Labour (DoL) with the request to put forward proposals for possible support by the US Government. A proposal was tabled to support the development of qualifications and the writing of unit standards for the primary agriculture sector.

Although the proposal was accepted by the United States Agency for International Development (USAID), the process to engage in the actual work did not progress and eventually PAETA commenced with some of the activities utilising the limited funds available.

By approximately June of 2002 the initiative from USAID was re-activated with an enquiry as to whether PAETA was still interested in the USAID support for the previous priorities. This enquiry was re-discussed by the Governing Board and EXCO and PAETA reaffirmed its commitment.

This contract was put out to tender by USAID and awarded to the Development Associates Consortium in October 2002.

Whilst the Standards Generating Body (SGB) for Primary Agriculture as well as the SGB for Ornamental Horticulture and Landscaping had already commenced with the design of qualifications and the writing of some unit standards, extensive work still needed to be done in this field. In order to complete the work within the time available (and perhaps sooner) the following planning framework was developed.

Theoretically two options/approaches were available to consider the farming industry at large, namely:

- To apply a commodity delineation to the sector and thus focus on the broad definition of agronomy, horticulture, ornamental horticulture and animal husbandry; or
- To consider the sector within a functional delineation namely, establishing, production, harvesting, storage and processing, transport and marketing.

In order to clarify the best route to take (which would also provide the framework for the development of qualifications and unit standards), it was proposed that the process be initiated with a larger stakeholder workshop bringing together subject matter experts (SMEs) from each of the commodity groupings.

The outcome of this intervention is a broad framework for qualifications and unit standards that will be developed as well as a logical approach to be followed (commodity based or functionally based or some combination thereof). This will lay the basis for the commencement of the work of the sub-groups (either commodity based or functionally based) to develop qualification frameworks and the necessary unit standards in the future.

2. INCEPTION WORKSHOP

This report summarises the conclusions of the four-day inception workshop, from 21 – 24 July 2003, which was organised as the starting point of the project. The aim of the workshop was to:

- Explore and map the primary agricultural landscape;
- Use this landscape as a basis for the qualifications framework; and
- Determine and agree on principles emanating from the above processes as a guideline for the development of the qualifications framework.

The programme and processes were structured to meet the above aims. (The programme of the workshop is attached as Annexure A).

Subject matter experts were identified to represent as many primary agricultural sub-sectors as possible with the view to developing a broad overview of the primary agricultural sector. (Please refer to Annexure B for name list). Subject matter experts were selected based on criteria accepted by the members of the steering committee.

The following sub-sectors were represented:

- Agricultural education
- Agriculture and human resources
- Agronomy
- Animal improvement
- Animal production
- Aquaculture
- Citrus
- Cut flowers
- Cotton
- Deciduous fruit
- Department of Education – national curriculum statements for agriculture
- Economics / business planning / flower export council / trade and investment
- Food safety & quality assurance / packaging / grading /classification of products
- Grain crops
- Grapes
- Herbs and spices / alternative crops
- Hydroponics
- Land-use and soil management
- Medicinal plants
- National Department of Agriculture
- Organics
- Ornamental plants

- PAETA
- Potatoes
- Red meat producers, emerging –including pig production
- Rural development / commercial farmers
- Sugar cane
- Soil science
- Sustainable agriculture
- Table grapes
- Vegetables
- Viticulture
- Wild flower harvesting
- Wine growers

Furthermore, representatives of the following SGBs attended the workshop:

- Extension Services;
- Ornamental Horticulture (invited to nominate five members); and
- Primary Agriculture (invited to nominate five members).

It should be noted that the Ornamental Horticulture SGB only sent one representative.

3. THE SUB-SECTORS OF PRIMARY AGRICULTURE

It was determined that Primary Agriculture consists of three distinctly different sub-sectors as well as four main crosscutting components. This section provides a description of the identified components of the Primary Agriculture Landscape (Figure 1).

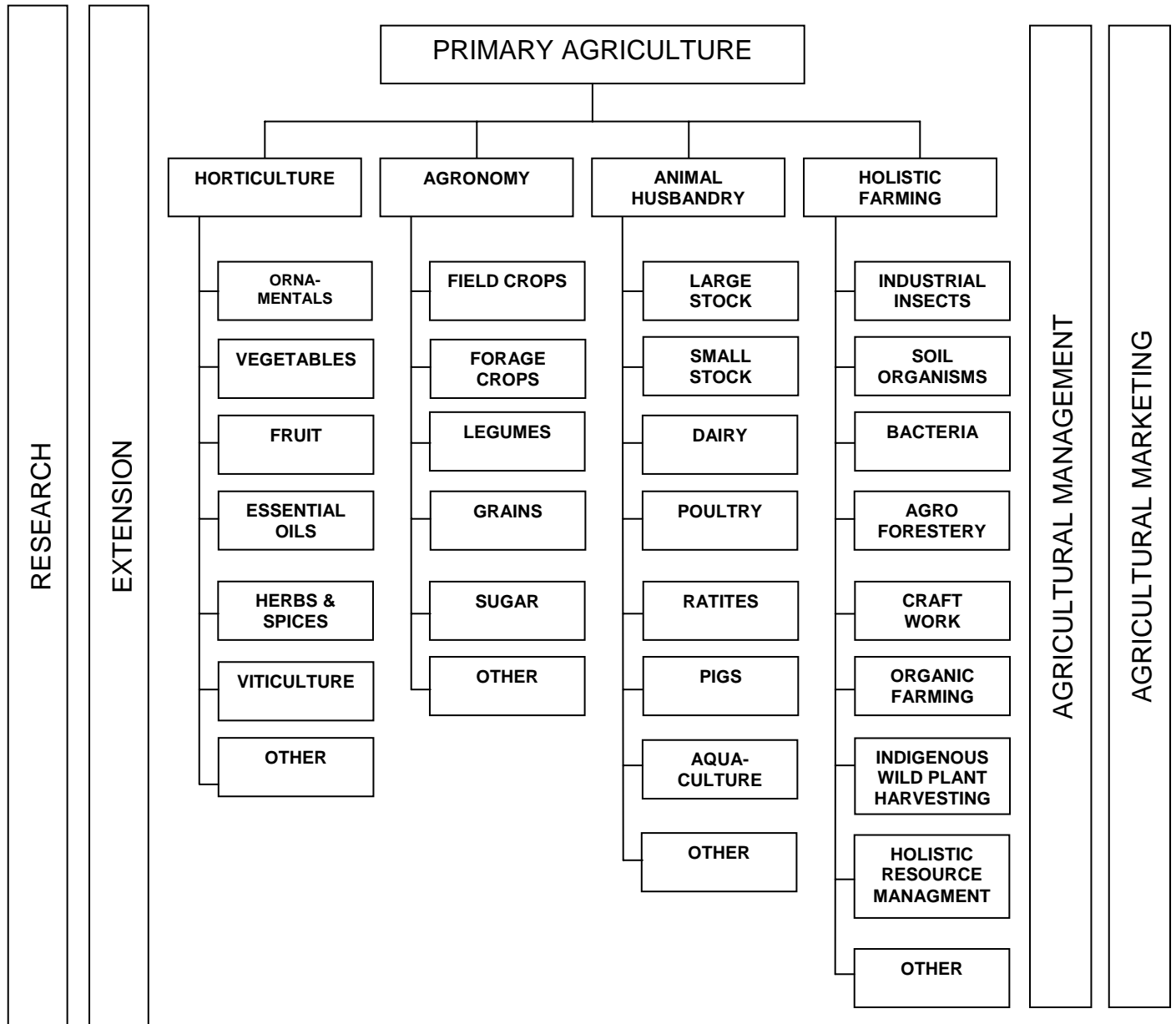


Figure 1: The sub-sectors and crosscutting components of the Primary Agriculture sector

3.1. Primary Agriculture Sub-sectors

It was determined that Primary Agriculture consists of four distinctly different sub-sectors as well as four main cross-cutting components. This section provides a description of the identified components of the Primary Agriculture Landscape (Figure 1).

Horticulture: The Horticulture sub-sector consists of production systems related to Ornamental Horticulture (Cut-flowers, Potted Plants, the nursery Industry, Turf Management, etc.), Vegetable production, Fruit Production (including citrus and subtropical fruit), and the production of essential oils and herbs.

Agronomy: This sub-sector consists of production systems related to field and forage systems, legumes, grains and sugar production. It is also possible to include crops such as potato and sweet potato in this sub-sector based on production practices.

Animal Husbandry: This sub-sector consists of the production of large and small livestock, dairy, game farming, ratites (ostrich, rabbit, etc.), poultry production (including broiler and egg production), aquaculture, pig farming, etc.

Holistic Farming Systems: This sub-sector consists of the production of organic farm produce, holistic approaches such as agroforestry and the HRM approaches (Holistic Resource Management), as well as the harvesting of indigenous wild plants and plants and insects used in craftwork (reeds, dye plants, insects for producing dyes such as cochineal, wood for carving, plants for medicinal purposes, etc.), conservation approaches such as Landcare, industrial insects (such as Honey Bees, earthworms, mopani worms, etc.), soil organisms and bacteria (many of which are used for organic disease prevention or soil fertility improvement, such as *Rhizobium*, Effective Micro-organisms, Rhum, *Bacterium thurigiensis*, etc.), and the agricultural aspects of training designed to implement inter-government treaties relating to the management of agricultural resources.

3.2. Crosscutting Aspects

It was also found that a number of the components of the primary agriculture sector cut across the various sub-sectors. These aspects should not necessarily be assigned to any specific sub-sector but should be considered equally important and applicable to all sub-sectors.

Research: Whilst most research organisations employ personnel from National Qualifications Framework (NQF) level 6 and upward, the group indicated that some people are employed at NQF level 5 (mostly described as Research Technicians) and lower levels (people employed as laboratory assistants, field workers, labourers, etc.). Especially at levels 1 and 2, there is

little reason to believe that employees within this group are any different from farm workers in any of the identified sub-sectors. This group forms a natural part of the scope of qualifications to be developed at NQF 5 and downwards and was therefore included as a crosscutting aspect.

Extension: Extension forms a natural link between Research and farming and was therefore included as a second crosscutting aspect of primary agriculture. This group is envisaged to enter the framework at Level 5, which requires extensive knowledge and skills of farming (i.e. the components of the various sub-sectors).

Agricultural Management: It was evident that workers at all the relevant levels of primary agriculture are to a varying extent involved in management. Although this involvement at lower levels was considered to be of a basic nature, it was still regarded as important to ensure appropriate knowledge and skills at all levels. It should also be noted that management practices do not differ within the sub-sectors and that they therefore become a crosscutting aspect of the Primary Agriculture landscape.

Agricultural Marketing: Whilst agricultural marketing may differ between the various sub-sectors (e.g. marketing of horticultural products may differ from animal products) as well as within the sub-sectors (e.g. local markets versus export), it was agreed that the basic concepts of agricultural marketing remain similar and so should be regarded as a fourth cross-cutting aspect of the sector.

3.3. Combining Sub-sectors and Crosscutting Aspects

Although the various sub-sectors and crosscutting aspects do not provide a complete representation of the Primary Agriculture Sector these aspects have an integrative influence on each other providing a basic picture of the main components and their interrelatedness. A combination of these aspects certainly provides a picture of the central farming theme of Primary Agriculture and shows the close linkages that exist within the farming component.

4. ROLE PLAYERS AND BENEFICIARIES

The workshop participants analysed the additional influences of up- and down-stream components in Primary Agriculture on the skills development requirements in regards to the farming component.

Table 1 provides our analysis of these role players and the following influences were identified and considered during our analysis:

Influences of up-stream role players: This group includes suppliers, professionals, financiers as well as the structures of Organised Agriculture. The following influences were identified:

- ***The development of new products and on-farm adaptation of production practices:*** In this case, it should be noted that new products are developed for the agricultural sector through a process of research, on-farm testing, adaptation and on-farm adoption. Farmers and their employees need to be informed about such products, knowledge and skills must be transferred to farm level and these organisations therefore have a direct influence on the content of training material to be developed and presented in the sector.
- ***Financial requirements:*** Financiers influence the sector through the development and adaptation of financial products, their specific requirements in terms of funding applications as well as the ability of people involved in farming to manage their money. These role players therefore have a direct influence on the requirement for financial training and the development of knowledge and skills at a financial and managerial level.
- ***Dynamic change:*** Dynamic political change in the sector has resulted in a requirement for adaptation of farming practices (e.g. environmental issues), management (e.g. labour issues) and marketing (e.g. export).

DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR

Table 1: Analysis of up-and down-stream role players and their influences

ROLE PLAYERS	INFLUENCE ON AGRICULTURE
Up-stream Role players	
Suppliers of input resources Feed companies Seed companies Fertiliser companies Agro-chemical companies Genetic material suppliers Suppliers of nursery material Animal health companies	New products and on-farm adaptation of production practices
Professional services Veterinary services Subject matter specialists Land use planners Research extension and training Contractors and consultants Suppliers and laboratory service providers	New technology and on-farm adaptation of production practices and farm management
Suppliers of machinery and equipment Machinery Transport tractors implements Packaging Irrigation Repairs and maintenance suppliers manufacturers	New technology and on-farm adaptation of production practices
Financial Institutions Finance	Financial requirements, loans, farm and business planning
Organised agriculture Industry organisations associations and unions	Dynamic strategic change resulting in adaptation of on-farm practices and management
Governmental SA Government Foreign countries (e.g. Zimbabwe)	Dynamic strategic change resulting in adaptation of on-farm practices and management
Down-stream Role players	
Packaging, processing and distribution Value adding Packaging Storage Packaging and bottling Transporters	New technology and on-farm adaptation of production practices
Markets Quality control structures Marketing agencies Consumers and exporters Inspectors Processors and buyers Retailers	New technology and on-farm adaptation of production practices

Influences of down-stream role players: This group includes role players in Packaging, Processing, Distribution and Marketing. The following influence was identified:

- ***The development of new products and on-farm adaptation of production practices:*** In this case, it should be noted that new products are developed for the agricultural sector through a process of research, on-farm testing, adaptation and on-farm adoption. Farmers and their employees need to be informed about such products, knowledge and skills must be transferred to farm level and these organisations therefore have a direct influence on the content of training material to be developed and presented in the sector.

5. THE PRIMARY AGRICULTURE LANDSCAPE

Considering the above (Section 2 and 3), it is evident that the Primary Agriculture Landscape consists of three main components, namely Up-stream Industries, Farming, and Down-stream Industries (Figure 2).

These components are linked closely and have specific influences on each other. It is also important to note that a need exists for the development of knowledge and skills throughout the entire sector and that this need is evident from the lowest level upwards.

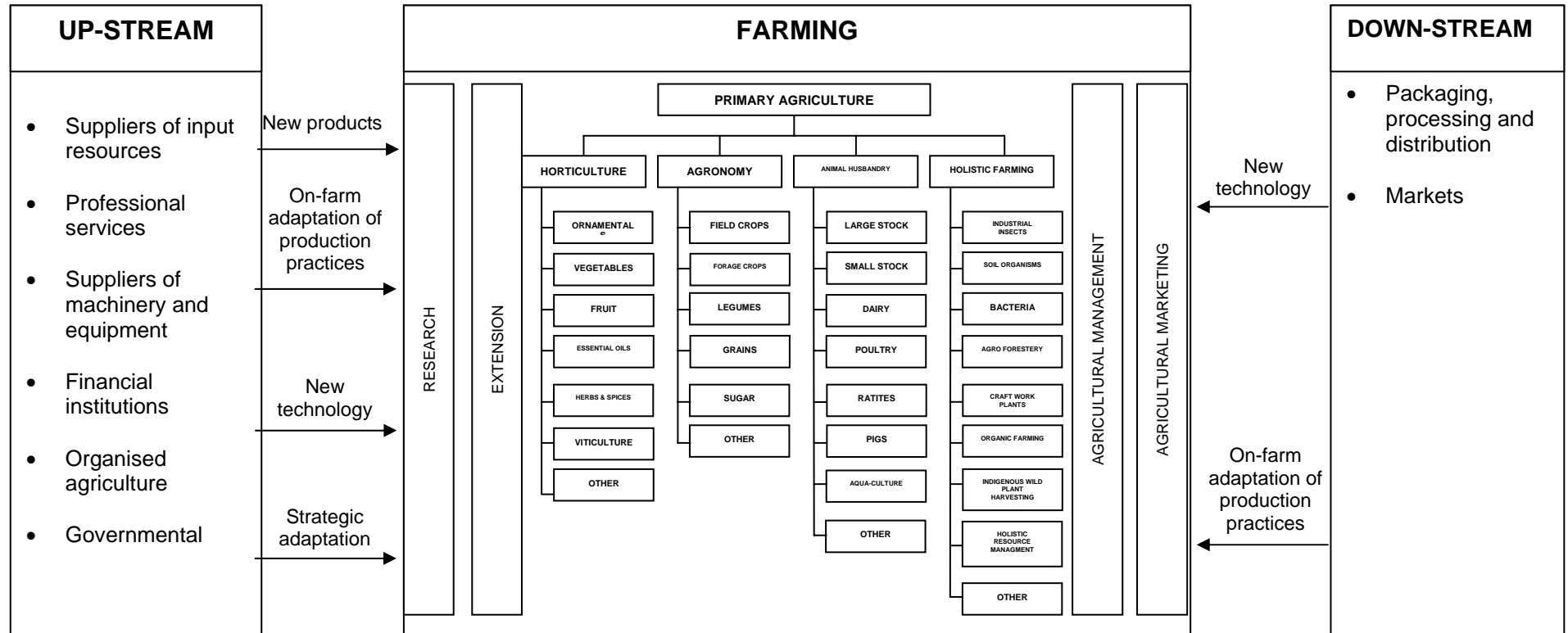


Figure 2: The Primary Agriculture Landscape.

It should be noted that extension services and research does not form part of the demarcation of the Primary Agricultural SETA (PAETA) according to the Skills Development Act 1998. According to the Organising Fields of Learning relevant to the National Standards Bodies (NSBs) and the South African Qualifications Authority (SAQA), agricultural extension services are included in the domain of NSB 01: Agriculture and Conservation. However, agricultural extension and research is an integral part of the primary agricultural landscape.

6. AGRICULTURAL PROCESSES

Since it was established earlier that Qualifications should be defined across the entire sector, a process was undertaken to determine the approach to defining such qualifications.

As a first step towards the development of a Qualifications Framework, the agricultural processes were determined for each of the identified sub-sectors. This section provides the results of the consultants' analysis as well as an indication of the approach to be followed during the development of such a framework.

6.1. Horticulture

During the analysis of the Horticultural processes (Table 2) it was found that a large number of similarities exist between various production systems. These similarities indicate that much of the horticultural production process are core requirements and that these aspects only differ in terms of the level of involvement of those responsible for execution.

Those aspects of the production process that differ between production systems are regarded as elective components and should be treated accordingly.

Table 2: An Analysis of the Horticultural Processes

PROCESS	VEGETABLES	FRUIT	OTHER	CREDITS
Planning	S	S	S	Core
Preparation				
Site selection	S	S	S	Core
Soil analysis	S	S	S	Core
Soil preparation	D	D	D	Elective
Planting				
Seed/seedlings	S	S	S	Core
Vegetative	D	D	D	Elective
Grafted	D	D	D	Elective
Production				
Irrigation	S	S	S	Core
Trellising	D	D	D	Elective
Nutrition	D	D	D	Elective
Plant protection	D	D	D	Elective
Pruning	D	D	D	Elective
Manipulation	D	D	D	Elective
Harvest				
Picking	S	S	S	Core
Grading	S	S	S	Core
Post-harvest				
Packaging	S	S	S	Core
Storage	S	S	S	Core
Processing	S	S	S	Core
Management	S	S	S	Core

Legend: S = Similar; D = Different

6.2. Agronomy

An analysis of the processes during agronomic production (Table 3) indicated that similarities exist between all of the components of production. It is therefore evident that most aspects may be regarded as core components during the definition of Qualifications and that these aspects only differ in terms of the level of involvement of those responsible for execution.

Table 3: An Analysis of the Agronomic Processes

PROCESS	OIL SEEDS	GRAINS/CEREALS	INDUSTRIAL	LEGUMES	CREDITS
Planning	S	S	S	S	Core
Budgeting	S	S	S	S	Core
Preparation	S	S	S	S	Core
Establishment	S	S	S	S	Core
Maintenance	S	S	S	S	Core
Harvesting	S	S	S	S	Core
Processing	S	S	S	S	Core
Marketing	S	S	S	S	Core
Transport	S	S	S	S	Core

Legend: S = Similar; D = Different

6.3. Animal Husbandry

During the analysis of the Animal Husbandry processes (Table 4) it was found that a large number of similarities exist between various production systems. These similarities indicate that a considerable number of aspects of the animal production process may be considered to be core and that these aspects only differ in terms of the level of involvement of those responsible for execution.

Those aspects of the production process that differ between production systems are regarded as elective components and should be treated accordingly.

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Table 4: An analysis of the animal husbandry processes.

PROCESS	POULTRY	PIGS	AQUA	S-STOCK	L-STOCK	DAIRY	GAME	CREDITS
Preparation	S	S	S	S	S	S	S	Core
Planning	S	S	S	S	S	S	S	Core
Acquisition of resources	S	S	S	S	S	S	S	Core
Choice of production system	S	S	S	S	S	S	S	Core
Human resource management	S	S	S	S	S	S	S	Core
Implementation of management plan	S	S	S	S	S	S	S	Core
Extensive system (housing)	D	D	S	S	S	D	S	Elective
Intensive system (housing)	S	S	S	S	S	S	S	Core
Feeding veldt	D	D	D	S	S	S	S	Elective
Feeding / pastures	D	D	D	S	S	S	S	Elective
Feeding/ mixed feed	S	S	S	S	S	S	S	Core
Feeding – supplementary feed	D	D	D	S	S	S	S	Elective
Breeding	S	S	S	S	S	S	S	Core
Hatchery management	S	S	S	S	D	D	D	Elective
Harvesting products	S	S	S	S	S	S	S	Core
Sorting and grading for harvest	S	S	S	S	S	S	S	Core
Marketing	S	S	S	S	S	S	S	Core
Health welfare control	S	S	S	S	S	S	S	Core
Husbandry practices specific for each group	S	S	S	S	S	S	S	Core
Farm maintenance practices	S	S	S	S	S	S	S	Core
Quality control	S	S	S	S	S	S	S	Core
Storage and packaging	S	S	S	S	S	S	S	Core
Transport	S	S	S	S	S	S	S	Core
Value adding	S	S	S	S	S	S	S	Core
Legislation	S	S	S	S	S	S	S	Core
Water ecology management	S	S	D	S	S	S	S	Elective
Environmental Impact Assessment	D	D	D	S	D	S	S	Elective

Legend: S = Similar; D = Different

7. COMPOSITION OF QUALIFICATIONS FRAMEWORK AND QUALIFICATIONS

7.1. Contextual Analysis

The contextual analysis is an important step towards establishing a learning pathway within the NQF and is structured to clarify the elements, the interactions and the skills needed for such interactions.

A context could be identified as the situation, events or information related to something and that help you to understand it better. In other words it relates to the place, the environment, the system with which a person interacts and which influences a person's behaviour and choices. The context could be physical, emotional or social.

Information emanating from the identification of the context would strongly influence and determine the activities a person engages in, as well as the skills and the knowledge a person acquires to interact in a meaningful manner with his/her context.

Five different contextual analyses were developed referring to the following scenarios:

- *Representing research*: A laboratory assistant
- *Representing extension services*: An extension officer
- *Representing agronomy*: A farmer (new entrant) in cotton farming (small grower)
- *Representing animal husbandry*: A small fish farmer (aquaculture)
- *Representing horticulture*: A farm owner – organic (small grower)

The contexts were analysed according to the following headings:

- The elements of the context
- Ways in which the farmer will interact / interface with the elements
- The skills needed by the farmer to be proficient in the interactions.

DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR

Table 5: Contextual Analysis of the Research Laboratory Assistant.

Elements	Interactions	Skills
Facilities: lab, growth room, glass house, stores	Utilise facilities	Basic technical skills: maintenance, liaison, safety
Data	Collect & process accurately	Numeracy Gr12 Accuracy
Computer	Collect and process accurately	Basic programme literacy
Lab Equipment	Use and maintain and store	Basic technical skills
Pests and diseases	Identify and control	Identify, prevention, control technique
Media	Preparation Recipe interpretation Measure, sterilise, Management, coordination, disposal	Accuracy Coordination
Plant material	Collect, process, post-flask process	Basic botany, physiology, tissue culture techniques, read & interpret trial layout
Stocks	Control	Stock control processes Orders
Store	Control	Stock control processes Orders
Personnel	Supervision, interaction	Communication Interpersonal
Additional notes:	Extension Communities Qualitative and quantitative research	

Table 6: Contextual Analysis of an Extension officer.

Characteristics: communicator, openness, innovator, practical farmer, leader		
Elements	Interactions	Skills
Farming community	Needs analysis Advice Training Vision Building Capacity building Technology transfer Group mobilisation Project management Build a bond of trust	SOFT: Understanding human behaviour Networking ability Organisational development Participatory techniques Adult / experiential learning Communication
Mainstream market	Identify Facilitate process	
Niche market	Identify Facilitate process	
Natural resources	Establish data base Resource conservation Participatory action research	HARD: Computer skills On-farm trial management
Financial services	Help to compile a business plan	Basic financial management
Technical support system		Programme planning
Social environment		Marketing
Data		Business acumen
Information		Facilitation
Other notes: input supply Technology development on-farm Master farmer		

DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR

Table 7: Contextual Analysis of a farmer (new entrant) in irrigated cotton farming (small grower)

Elements	Interactions	Skills
Soil	Soil sampling	Methods of soil sampling, prepare seed beds, ploughing
Water – irrigation	Irrigation	Scheduling Operate Maintain
Finance		Budgeting Prepare operation plan
Seed	Choice of cultivar	Establish crop
Weeds	Identify Control	Weed control methods Calibration
Pests & diseases	Identify Control	Pest and disease control methods Calibration
Nutrition	Fertilise Liming	Fertiliser application methods Calibration
Product	Harvest Grading Packaging	Harvesting method Grading & packaging methods Tractor driving, Operate & maintain equipment
Management	Human resources Administration Marketing	Interaction, legal Planning, Leading, Organise, Control Marketing skills
Implements	Operate and maintain	Tractor driving Operate and Maintenance skills
Labourers	Human Resource Management (HRM)	Interaction skills Legal knowledge
Infrastructure	Erect Maintain	Maintenance skills

DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR

Table 8: Contextual Analysis of a small fish farmer (aquaculture).

ELEMENTS	INTERACTIONS	SKILLS
Site	Suitability and selection	Management calendar Planning Water management Farm business management Decision-making Planning Writing Organising Communication Human resources management Production skills Storage Leadership Problem-solving
Water	In and out flows Temperature assessment Quality	
Fish	Species selection Sexing Behaviour	
Feed	Purchase and storage Feeding Rosters and schedules	
Diseases	Prevention and identification Treatment	
Management	Management plan Financial plan	
Equipment	Use, clean and store, maintain	
Harvest	Process and methods	
Quality	Access information Analyse and respond Sampling and inspection	
Storage	Conditions Freezing, smoking, fresh	
Transport	Organise, provide	
Consumer	Preferences	
Waste	Filter, disposal and management	
Chemicals	Handling, precautions, usage, storage	
Predators	Control	
Ponds, infrastructure	Construct	
Hygiene		
Markets	Access information Analyse Respond	
Environment	Potential impact	
Industry	Awareness, interaction Non-Governmental Organisation's (NGO's) Cooperatives	
Finance	Access Manage Plan	
Legislation	Applicable Awareness Compliance	
Safety	Swimming Food Product	
Packaging	Purchasing Storage Usage Maintenance	
Labour	Acts HRM Manage Supervise Instruct Monitor Conflict resolution Rosters and schedules	

DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR

Table 9: Contextual Analysis of a farm owner – organic grower (small grower)

ELEMENTS	INTERACTIONS	SKILLS
Technology	Select, buy or make Use and apply Clean / maintain Store	Understand and use water run-off Identify appropriate species and cultivars Computer skills
Equipment	Select, buy or make Use and apply Clean / maintain Store	Decision-making Technical know-how (water, soil, plants, animals) Leadership and management
Suppliers	Negotiate Order Pay Documentation Records	Interpersonal skills Understand local climate and use effectively Know how to access information
Sources (of inputs)	Negotiate Order Pay Documentation Records	Communication (with bank, professionally and to staff) Organic production requirements Effective pest and disease control and management strategy Apply quality control measures
Market	Access information ID niche markets Advertising Negotiate delivery plan Quality	Interpret climate data Clean, maintain and store equipment Planning Packaging
Buyers	Ditto	Basic accounting
Finance	Apply for loan Keep records Calculate cash flow Pay salaries Banking Pay accounts Pay tax	Appropriate administrative skills Know market and demands Compile a business plan
Receiver of revenue	Pay tax	
HR management	Staff Occupational safety Labour Act HIV/AIDS Pay salaries and wages	
Advisors	Associations (organic growers) Organic certification requirements (maintain) Organic inspectors Apply new relevant ideas	
Water	Provide growing plants with sufficient water Understand rainfall patterns	
Soil	Improve and maintain soil health Interpret laboratory results and act appropriately	
Manure / compost		
Plants	Plant selection Grow plants Harvest plants Storage Transport	

DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR

ELEMENTS	INTERACTIONS	SKILLS
Animals	Know about specific animal behaviour, characteristics and needs Feeding Disease identification and prevention	
Climate	Source information Weather patterns Understand and apply climate info	
Business	Register	

When comparing the contextual analysis of the “Cotton Farmer”, the “Fish Farmer” and the “Organic Farmer”, a few issues emerge, namely:

- 7.1.1 There are large similarities between the elements, the interactions and the skills of each context.
- 7.1.2 Despite the similarity between the contexts of the respective “farmers”, the competences were pitched on different NQF levels, namely NQF 1, NQF 3 and NQF 5 respectively.
- 7.1.3 The group pitching the farmer at NQF level 5 indicated that this was the level of competence regarding business skills and decision-making skills required to be a successful farmer.
- 7.1.4 On the question of which of the elements, interactions and skills are not applicable to a farm *worker*, the response was that all are applicable, however not to the same scope and complexity.

The following deductions can be made from the above observations:

- 7.1.5 The similarities could point to a single, generic qualification;
- 7.1.6 The farmers engage in similar interactions, but on different levels. This indicates unit standards on the same topics which start at NQF level 1 and continue through all levels but increasing in scope and complexity (with reference to the level descriptors);
- 7.1.7 Strong consideration should be given to pitching unit standards on “farm owning” related activities at higher NQF levels. This might mean that higher level farm owning unit standards be included in the lower level qualifications;
- 7.1.8 The distinction between the skills for farm owner and farm worker might be artificial and are not reflected in reality. Distinctions are rather related to NQF levels.

7.2. Principles Guiding Qualifications and Unit Standard Decisions

In the process of developing a qualifications framework and unit standards for the sector, it is important that there is a common understanding of issues as well as common agreement on the principles underpinning the decisions in this regard. Common agreement was expressed on the following principles:

Approach: The importance of acknowledging the strategies behind the process of developing qualifications was emphasised. This includes:

- 7.2.1 A holistic view of what is actually happening in agriculture;
- 7.2.2 Looking at agriculture from a broad basis, preparing farmers for the future and not repeating or reiterating past practices; and
- 7.2.3 Ensuring that qualifications emphasise good agricultural farming practices.

Commonalities and Diversities: The relationships and interrelatedness between the various sub-sectors were clarified. Therefore, the following issues should be reflected in the design of qualifications:

- 7.2.4 The relationships between the different fields, rather than a narrow focus;
- 7.2.5 The considerable over-lap between horticulture and agronomy, and, to a lesser extent, animal husbandry, should be acknowledged;
- 7.2.6 The differences in animal husbandry – specifically when it comes to practices; and
- 7.2.7 Minimum duplication, maximum coherence.

Level of Competence: When applying the level descriptors, the following implications of determining the level of the qualification should be acknowledged:

- 7.2.8 Level descriptors should determine the competence level and not the person;
- 7.2.9 Actions, processes and skills needed to manage a farm need to be at NQF 5 & or 6 i.e. indicating decision-making skills;
- 7.2.10 Competence at NQF Levels 1 & 2 when operating as farm owner will require assistance and mentorship.

Titles: Choosing a title that is unambiguous is important. Therefore, the following should be considered:

- 7.2.11 The term *Farm Owner* as a title for a qualification or learnership is misleading. A farm owner could in practice not be involved in the operation of the farm whilst a farm manager could need the competencies included in the qualification titled “Farm Owner”.

7.2.12 Although there are similarities between the competence required by the farm worker and the farm owner, the differences should be reflected in the composition of the qualification.

Credit value: The minimum credits prescribed for a national certificate is 120 credits and equates to approximately one year of learning. In designing the qualification, especially at levels 3 and above where a component of supervisory or managerial skills is included, it is important not to overload the learner by putting too much into the qualification.

Elective unit standards and areas of specialisation: With regard to developing the elective unit standards, it was agreed that:

7.2.13 As far as possible, commodities should be grouped together and elective unit standards should be as generic as possible without compromising the value of the unit standard;

7.2.14 Elective unit standards should be distinctly different from existing unit standards;

7.2.15 Specific needs should be motivated to the SGB for consideration when developing separate elective unit standards;

7.2.16 The individuals developing elective unit standards should be capacitated through appropriate training and/or assistance; and

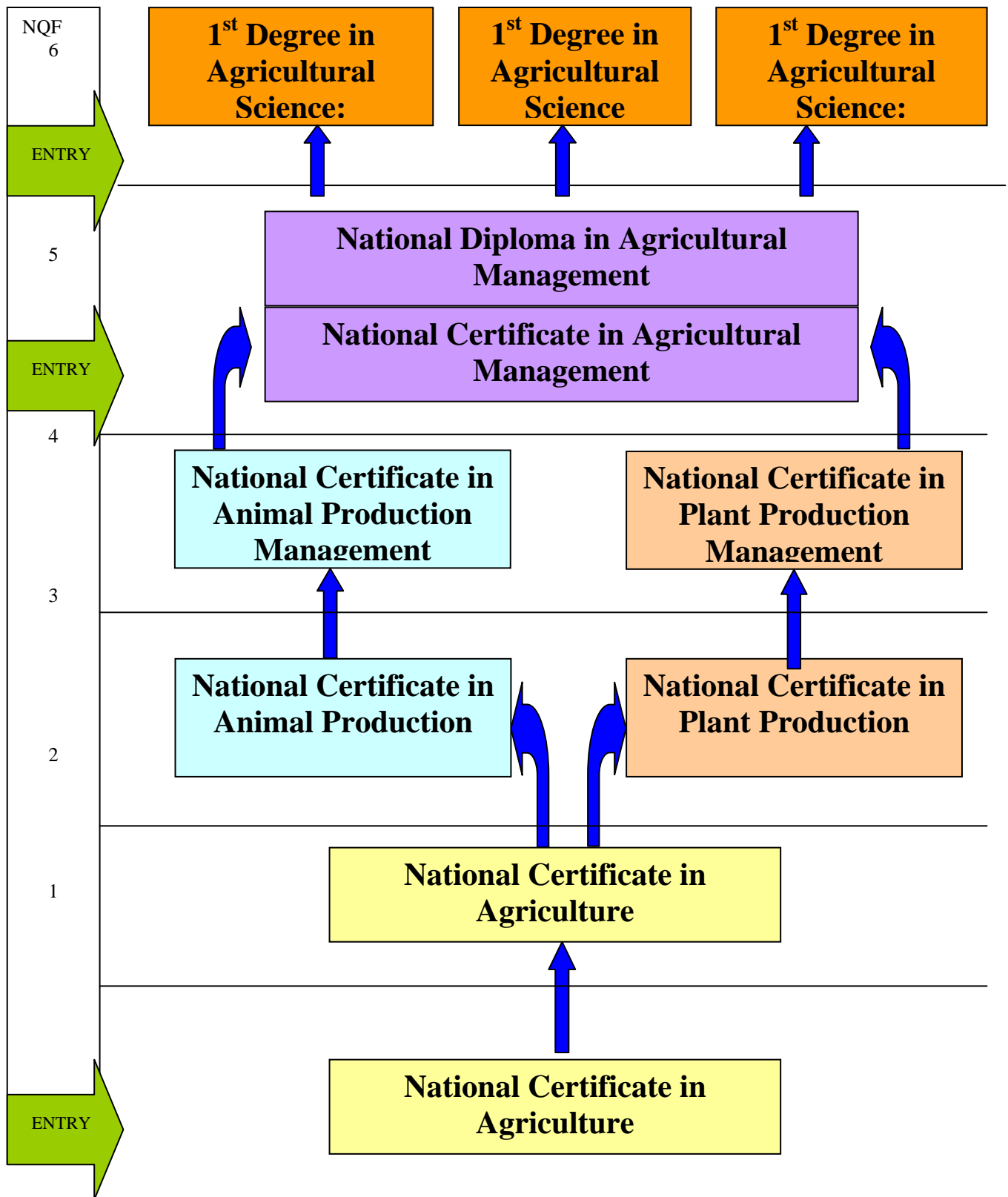
7.2.17 At NQF 5, specialisation should be more specific, e.g. cash crops, permanent crops, intensive / extensive systems.

7.3. A Coherent Qualifications Framework

Based on the above contextual analyses as well as the principles agreed upon, a coherent qualifications framework was structured.

Topics from the contextual analysis were categorised to form the basis for a qualifications matrix. Building on the observation in paragraph 6.1, the same topics will be covered in the qualifications at various levels in accordance with the level descriptors to provide for appropriate competence levels. It also reflects the principles mentioned in paragraph 6.2. This structure provides for maximum coherence as well as enhanced portability.

Figure 3: A Qualifications Framework



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Table 10: Basis for Qualifications Matrices

(Note: The shaded parts indicate competencies generic to agricultural practices, which will be combined by either a crop production or an animal production core. This can either form an “elective core” (with reference to the remark by A van Niekerk) or form separate qualifications, depending on guidance from SAQA).

Fundamental	Core	Elective
<ol style="list-style-type: none"> 1. Communication 2. Numeracy 3. Farming community 4. Data 5. HIV/AIDS 6. Environment (friendly and sustainable) 7. Information 8. Rural sociology 9. Sustainability 10. Land Care 	Business Related Core <ol style="list-style-type: none"> 1. Primary Agriculture (as an Industry within global village, Micro, Meso and Macro) 2. Business structure 3. Finance (Budget, Receiver of revenue, cash flow, loans, debt, payment) 4. Marketing (Market, Buyers, Consumer) 5. Records & Administration 6. Risk Management 7. Sources 8. Strategic Planning & Management 9. Procurement and acquisition 10. Advisors, networking 	<ul style="list-style-type: none"> • Export / Import • International standards & market requirements • Transport
	People Related Core <ol style="list-style-type: none"> 11. HR management 12. Occupational Health and Safety 	
	Agricultural Practices and Resources Core <ol style="list-style-type: none"> 13. Climate (micro and macro control) & Weather 14. Disaster management 15. Equipment, Technology, implements and infrastructure (farm and operational) 16. Farm layout and Site selection 17. Habitat management 18. Hygiene 19. Quality 20. Storage 21. Waste 22. Water and Irrigation 	<ul style="list-style-type: none"> • Packaging • Engineering (agricultural) • Organic • Hydroponics
	Animal Production Related Core <ol style="list-style-type: none"> 23. Production Planning (Prepare – Establish – Maintain – Harvest – Post Harvest) 24. Breeding 25. Diseases and pests 26. Housing (animal) 27. Manipulation 28. Nutrition and water 29. Physiology 	<ul style="list-style-type: none"> • Water as habitat • Milking • Eggs • Slaughter • Dairy management • Wool • Hides • Predators
	Plant Production Related Core <ol style="list-style-type: none"> 30. Production Planning (Prepare – Establish – Maintain – Harvest – Post Harvest) 31. Irrigation 32. Manipulation (Pruning & Trellising) 33. Nutrition 34. Pests and diseases 35. Planting (seeds, vegetative, seedlings) 36. Physiology 37. Replacement 38. Seed 39. Seedlings 40. Soil (analysis and preparation and science) 41. Weeds (identification and control) 	<ul style="list-style-type: none"> • Picking • Packaging • Grading • Post-harvest treatment

8. THE WAY FORWARD

8.1. Recommendations

The above information on the primary agricultural landscape as well as the qualifications framework provides for a solid foundation to proceed with the rest of the process of finalising qualifications and unit standards at all levels to fill the gaps. However, it should be a reiterative process and the above framework should be revisited as the process unfolds, firstly as a guideline to steer the process and secondly to verify the thinking of the inception workshop as more detail emerges from the processes.

In terms of the scope of the assignment it is recommended that:

8.1.1 The process to develop unit standards, taking into consideration the existing unit standards, continues.

8.1.2 The generic unit standards be developed first.

8.1.3 Experts be grouped in terms of the “topics” of the qualification matrix and develop unit standards on all levels focusing on the generic competencies. (As example: A group of experts can be working on “irrigation” and develop unit standard titles at all levels and produce a table such as this one):

NQF 1	NQF 2	NQF 3	NQF 4	NQF 5
Water plants manually	Watering – inspect, maintain and use sprinkler equipment	Operate sprinkler systems and adjust quantities to suit climatic conditions	Operate, schedule and maintain irrigation systems	Design and construct an irrigation system
Note: This should be regarded as an example only to explain 8.1.3.				

8.1.4 This approach is adopted which will enhance the coherence of unit standards as well as the coherent increase in complexity and scope according to level descriptors.

8.1.5 Additional experts need to be contracted as the need arises.

8.1.6 The needs of the SGB for Ornamental Horticulture in terms of this assignment need to be clarified.

8.1.7 The development of all future elective unit standards be placed on hold until the generic unit standards have been consolidated/developed.

8.1.8 The duration of the workshop is altered, as the inception workshop was perceived as a problem in this regard. Participants found it difficult to

make four days available. It is suggested that the nature of the workshops be adapted within the parameters of the budget.

8.1.9 Working groups be established in various areas, a point which emerged during discussions at the workshop. However, these fall outside of the scope of this project and should be referred to the appropriate forums:

- Career pathing working group;
- Holistic farming working group;
- Agricultural research working group; and
- Agricultural extension services.

8.1.10 A manual is developed for training providers and assessors to facilitate the interpretation and contextualisation of unit standards, as requested by the group.

8.2. Next Steps

Activities to continue the process should commence immediately, as follows:

8.2.1 Circulate the report to all workshop participants for comment/input.

8.2.2 Inform respective SGBs of progress and establish this process as a “working group” within the relevant SGBs.

8.2.3 Meet with the chairperson of the SGB for Ornamental Horticulture and Landscape with the view to clarify the role and involvement of the SGB.

8.2.4 Suggested dates for the next workshop are 29 September to 2 October 2003.

8.2.5 It is envisaged that subject matter experts (SMEs) will be grouped in very small groups (3-4 persons). Each group will focus on an aspect of the qualifications framework (e.g. irrigation or propagation) and develop a set of generic unit standards at each level, ranging from NQF 1 to NQF 5.

Annexure A

USAID-FUNDED PROJECT FOR THE DEVELOPMENT OF A
QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT
STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR

INCEPTION WORKSHOP (21 – 24 July 2003)
PROGRAMME

DAY 1		
ACTIVITY	RESPONSIBLE PERSON	STARTING TIME
1. TEA/COFFEE and REGISTRATION		09h30 10h00
2. Welcome	CEO of PAETA	
3. Background on the project	CEO of PAETA	
4. Introduction on the views of PAETA in terms of the development of a Qualifications Framework and the importance of availability, usability and relevant products.	CEO of PAETA	
5. Presentation on the Primary Agriculture Landscape in relation to the development of Qualifications and US.	Dr de Villiers	10h30
6. Presentation on the best practices in terms of the development of Qualifications and Unit Standards	Mrs Enslin	11h00
7. Status Quo of current SGB processes and deliverables: - SGB for Ornamental Horticulture and Landscaping - SGB for Primary Agriculture - Areas/sub-sectors not covered by SGB briefs and/or current activities	SGB Chairpersons to provide presentations: John Gordon	11h30
	Henry Moore	11h50
		12h10

**DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT
STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR**

8.	Presentation on problems experienced with existing Qualifications and Unit Standards	Alvin van Niekerk on the evaluation of the unit standards	12h30
9.	LUNCH		13h00
10.	Introduction	Mrs Enslin to facilitate	14h00
11.	Expectations		
12.	Workshop Purpose and Aim		
13.	TEA		15h15
14.	Development of the Primary Agriculture Landscape <ul style="list-style-type: none">- Identification of the Industries- Identification of Sub-Industries	Dr de Villiers to facilitate a group and sub-group process	15h30
15.	Closure		17h00

DAY 2		
ACTIVITY	RESPONSIBLE PERSON	STARTING TIME
1. TEA/COFFEE		8h30
2. Recapture the process	Mrs Enslin	9h00
3. Development of the Primary Agriculture Landscape (continued) - Identification of the various role players per sub-industry - Identification of the Beneficiaries per sub-industry	Dr de Villiers to facilitate a group and sub-group process	9h10 10h10
4. TEA/COFFEE		11h10
5. Development of the Primary Agriculture Landscape (continued) - Identification of the Agricultural/Horticultural Processes	Dr de Villiers to facilitate a group and sub-group process	11h30
6. LUNCH		12h30
7. Continue number 5		13h30
8. TEA/COFFEE		14h45
9. Development of the Primary Agriculture Landscape (continued) - Identification of Common Processes - Identification of Diverse Processes	Dr de Villiers to facilitate a group and sub-group process	15h00
10. CLOSURE		17h00

DAY 3		
ACTIVITY	RESPONSIBLE PERSON	STARTING TIME
1. TEA/COFFEE		8h30
2. Recapture Day 2 proceedings	Dr de Villiers	9h00
3. Learning pathways and progression	Mrs Enslin to facilitate a group and sub-group process	9h15
4. TEA/COFFEE		11h10
5. Competencies within Agricultural/ Horticultural Processes	Mrs Enslin to facilitate a group and sub-group process	11h30
6. LUNCH		13h00
7. Competencies within Agricultural/ Processes (Cont.)	Mrs Enslin to facilitate a group and sub-group process	14h00
8. TEA/COFFEE		15h00
9. Development of a Common Approach to a Qualifications Framework	Mrs Enslin to facilitate a group and sub-group process	15h20
10. Clarification of accepted principles	Mrs Enslin to facilitate a group and sub-group process	16h10
11. Closure		17h00

DAY 4		
ACTIVITY	RESPONSIBLE PERSON	STARTING TIME
1. TEA/COFFEE		8h30
2. Recapture of Day 3 proceedings	Mrs Enslin	9h00
3. Develop a coherent Qualifications framework	Mrs Enslin to facilitate a group and sub-group process	9h10
4. TEA/COFFEE		11h10
5. Develop a coherent Qualifications framework (Cont)		11h30
6. Identification of gaps and priorities	Mrs Enslin to facilitate a group and sub-group process	12h15
7. Way Forward	Mrs Enslin to facilitate group and sub-group process	12h45
8. Summary	CEO of PAETA	13h15
9. Closure	CEO of PAETA	
10. LUNCH		13h45

Annexure B

**PAETA PLENARY
20 – 24 July
Birchwood Conference Centre & Executive Hotel**

CAPE PROVINCE	TOTAL FROM CP = 7	
Name/Phone	Company &/or Sector/Area	
Mrs Eunice Avenant Tel: (021) 808-5451	Elsenburg Landboukollege, Elsenburg	Attended
Mr Gerrie JJ Albertse Tel: (021) 886-6148	SA Wine Industry Trust (?) Cell: 083 629-5942	Attended
Mr Henry P Horne (021) 809-3341	Nietvoorbij Experimental Farm, Vineyard Academy, Stellenbosch Cell: 082 420 5976	Attended
Lance Kabot	Flower Valley Conservation Trust Cell: 082 334 0776	Attended
Mr Khalid Salie Tel: (021) 808-4770	University of Stellenbosch Cell: 082 412-6120 Attending on behalf of Danie Brink	Attended
Ms Alicia J Solomons – Tel: (021) 883-2490	Cape Women’s Forum, Stellenbosch Cell: 083 642 2122 (SGB)	Attended
Mr Denver R Williams (021) 870-2900	Paarl (<i>no company or org provided</i>) Cell: 082 373 6381	Attended
EASTERN CAPE	TOTAL FROM EC = 1	
Name/Phone	Company &/or Sector/Area	
Miss SE Spies Tel: (041) 581-1039	Heartlight – Sustainable Agriculture & Perma Culture Cell: 082 663-6692	Attended
GAUTENG	TOTAL FROM GP = 21	
Name/Phone	Company &/or Sector/Area	
Mrs OD (Bubi) Aphané Tel: (012) 561-2583	Haakdoornboom – <i>No company/org</i> Cell: 082 749 2898	Attended
Prof Hennie Boshoff Telefax: (018) 290- 6019	Training & Development Portfolio - SA Flower Export Council-Potchefstroom <i>Will attend 1st 2 days only (21-22)</i>	Attended
Dr IF Du Plooy Tel: (012) 329-4031	Riviera, Pretoria – <i>No company/org</i> Cell: 082 331 0459	Attended
Elsa du Toit Tel: (012) 420-3227	Plant Propagation & Nursery Management – Pretoria	No Show
Mr Phonníe du Toit Tel: (018) 299-6331	ARC-Grain Crops Institute (APIV), Potchefstroom Cell: 083 291 8036	Attended
Mrs Astrid AM Hattingh Tel: (018) 299-6331	ARC – Grain Crops Institute	Attended

**DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT
STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR**

GAUTENG contd	TOTAL FROM GP = 21	
Name/Phone	Company &/or Sector/Area	
Beatrice Enslin Tel: (011) 391-5631	Consultant Cell: 083 463 8464	Attended
Mr MD Erasmus Tel: (012) 319-6027	National Dept of Agriculture, Pretoria	Attended
Mr John Gordon – (SGB) Tel:	Ornamental Horticulture – SGB (Standards Generating Body)	Attended
Mr Caashief Lombard Tel: (012) 452-2219	USAID Cell: 082 855	Attended
Mr JS Madiba – (SGB) Tel: (012) 312 5226	Dept of Education Cell: 082 374 8605	Attended
Mr M Mahanjana Tel: (012) 361-9127	NERPO, Pretoria Cell: 082 556-7297	Attended
Mr M Mankazana- (SGB) Tel: (012) 319-7028	Agriculture Building, Pretoria Cell: 082 907-2275	
Mr Machiel van Niekerk Tel: (012) 325-1655	PAETA Cell: 083 304-1601	Attended
Mr JL Tladi (John) Tel: (012) 319-7568	Dept of Agriculture, Land Use E-mail: johntl@nda.agric.za	Attended
Mr MP (Fanny) Phetla Tel: 012 325 1655	PAETA Cell: 073 169 7836	Attended
Mr TC Ramashala Tel: (012) 319-6072	National Dept of Agriculture, Pretoria Cell: 072 357-3845	
Mr Keith A Ramsay Tel: (012) 319-7448	National Dept of Agriculture, Pretoria Cell: 082 770-5158	Attended
Dr AJ Thompson (012) 841-9863	ARC – Roodeplaat, Pretoria Cell: 082 805-4789	Attended
Roelof de Villiers	Consultant Cell: 082 894-6085	Attended
Mr Simon Letsoalo	Technikon Pretoria (SGB for Agricultural Extension)	Attended
Mr Mark Theron	SGB Ornamental Horticulture and Landscape	Attended
Mr Alu Mafunzwani	National Department of Agriculture	Attended
Dr Fanie Terblanche	SGB for Agricultural Extension	Attended
Johann Engelbrecht Tel: 012 325 1655	PAETA Cell: 082 571 3526	Attended
MPUMALANGA	TOTAL FROM MP = 2	
Name/Phone	Company &/or Sector/Area	
Ms RJ du Preez Tel: (013) 753-7000	ARC – Institute for Tropical & Subtropical Crops, Nelspruit Cell: 073 252-7675	Attended
Ms JE Smit Tel: (013) 753-3064	Lowveld College of Agriculture, Nelspruit Cell: 082 895-7598	Attended

**DEVELOPMENT OF A QUALIFICATIONS FRAMEWORK, QUALIFICATIONS AND UNIT
STANDARDS FOR THE PRIMARY AGRICULTURAL SECTOR**

PROVINCE - KZN	TOTAL FROM KZN = 4	
Name/Phone	Company &/or Sector/Area	
Dr Raymond Auerbach Tel: (031) 783-4412	Rainman Landcare Foundation, Peacevale, Hillcrest Cell: 082 922 7946	Attended
Mr J Foli Tel: (035) 795-1345	Owen Sithole College of Agriculture – Empangeni Cell: 083 324-6408	Attended
Mr GE Kobus Tel: (033) 355-9445	Dept. Agriculture & Env Affairs, Cedara Farm, PMB	Attended
Mr H Moore - (SGB) Tel: (031) 539-3205	SA Experiment Station, Mount Edgecombe	Attended
Dr Alvin van Niekerk	PMB – CEDARA Cell: 082 888-0531	Attended
DECLINES = 4		
Dr Hennie le Roux	Fax received 14/07/03 – unable to attend	
Mrs Estelle Engelbrecht	17/7/03 – not attending as Alicia Solomons from Cape Women's Forum is	
Mr Geoff Nichols	20/6/03 – fax indicating he would not attend	
Milton Titimani	18/7/03 – Mr Titimani made decision not to come, due to lack of reimbursement for time spent away from farm.	
Carolyne Thompson	No response	

Total: 40

APPENDIX B: LIST OF PARTICIPANTS

DELEGATES	ORGANISATION
Name	Org/Company
Mr Francois Marais	Elsenburg LandbouKollege
Tertius Carinus	SANParks - Agulhas Biodiversity Initiative
Raymond Auerbach	Rainman Landcare Foundation
Denver Williams	DFPT - Deciduous Fruit
Joseph Foli	Owen Sithole College of Agriculture
Hentie (CH) Boshoff	Futures Trust/SA Flower Export Council
Bubi (OD) Aphane	Mabothoso Agric Development
Sue Spies	Heartlight-Sustainable Agri & Perma
Roger Bailey	Flower Valley Conservation Trust
Jeanette Smit	Dept of Agric, Lowveld College of Agric
John (DJ) Tladi	Department of Agriculture
Niel Erasmus	NDA - Food Safety & Quality Assurance
Khalid Salie	University of Stellenbosch
Grant Kobus	KZN Dept Agriculture & Env Affairs
Andrew Masemola	Morwa Agri Development
Lekakane (Wilson) Leshilo	Limpopo Dept of Education
Leon de Beer	National Wool Growers Association
Johannes Klopper	National Wool Growers Association
Annetjie Loubser	Agric Research Council
Alicia Fillis (ne Solomons)	Cape Women's Forum
Keith Dampies	Deciduous Fruit - Elgin (SGB Member)
Milton Titimani	Linedrift Farm/ Heifer International
Attie de Beer	ARC-GCI, Sustainable Rural Livelihoods
Astrid Hattingh	ARC-Grain Crops Institute
Fransa Ferreira	Unisa/Vista - Com. Res Tech
Mr Henry Horne	Vineyard Academy
Gerrie Albertse	SA Wine Industry Trust
Fanie (SE) Terblanche	SGB for Agricultural Extension
Mkhululi Mankazana	NDA - Agric Education Policy Directorate
Renee Deschamps	SGB - OHL
Henry Moore	SGB Chairman SA Sugar Association
Riaan Nowers	Dept of Agriculture, Western Cape
Gavin Eichler	Zululand Centre for Sustainable Dev
Venty Mahlangu	Dept of Agric, Mpumalanga
Dr A S Dlodla	KZN Dept Agric & Environ Affairs
Jackie Beerwinkel	Dept Agric: Western Cape
Gideon Steyn	University of Pretoria
Frik Steenkamp	Morgenzon Agricultural High School
Bom Louw	Lowveld College of Agriculture
Mfusi Mjonono	Elsenburg College of Agriculture
Bongiswa Mahlanza	Elsenburg College of Agriculture
Sakhumzi Diza	Elsenburg College of Agriculture
Emmanuel Poku	Owen Sithole College of Agriculture
Tommy Phiri	SAFROPA
William van der Merwe	ABKS Potchefstroom University
Freek du Plooy	Private

Naomi Smit	Dept of Agriculture, Free State
Ferde Hugo	Dept. Agriculture Western Cape
Hennis Germishuys	Dept. Landbou Hulpbronbewaring
Ken Kennedy	Formosa Training Forum SA Agri Academy
Solly van Tonder	Rural Integrated Engineering
Peter Reid	Lowveld College of Agriculture
Mark Anthony	Mpumalanga Dept of Agriculture
John J Nzira	Food & Trees for Africa
Robert Post	Bee Industry
Lourens de Wet	Univ of Stellenbosch, Div of Aquaculture
Greta van der Merwe	ARC
David Donkin	Animal Production Consultant
Frans Joubert	Mpumalanga Education Agriculture
David Barnard	Elsenburg College of Agriculture
Obie Oberholzer	Lowveld College of Agriculture
Wilhelm Kenny	Dept of Agriculture, Western Cape
Keith Ramsay	NDA
Annette Bennett	Cotton SA
Andrew Mbedzi	Du Roi Precision Farming
Paul Oliphant	Boland District Municipality
Lance du Toit	Molteno Brothers Farming
Herman Loubser	ARC Grain Crops Research
Charl van Rooyen	Agricultural Extension Officer
Roberta Burgess	ARC - Sustainable Rural Livelihoods Prog
Ms Mapaseka Maphaha	University of Fort Hare, Fac of Agric
Mr Obeng Kofi Owusu-Aduomi	University of Fort Hare, Agronomy Dept
Henry Cook	Elsenburg College of Agriculture
Hilary Boshier	Green Futures College
Sean Privett	Grootbos Green Futures College
Mustaq Hoosen	Owen Sitole College of Agric, KZN
W A Ferreira	Grain SA
Eunice Avenant	Elsenburg LandbouKollege (<i>Pomology & table grapes</i>)
GP Viljoen	Animal Production Consultant
Jonathon Wigley	WESSA Permaculture
Dimitri Tassiopoulos	Border Technikon (Higher Education: Tourism)
Joa Bekker	Karsten Bdy
Chris Martens	Western Cape Nature Conservation Board
Gerhard Gerber	WC Dept of Enviro Affairs & Dev Planning
Isabel Potgierter	Dew Crisp Farms
Hannes Robbertse	17 Shaft Training
Gary Larkan	Game Farming
Neil Evans	Dept Comm Science, Univ of Zululand
Laurence Evans	Mtunzini Prawn Farms (Pty) Ltd
Janice Crous	I&J Abalone Culture Division
Dr Pierre Hugo	Abagold
Mynhardt van Dyk	Abagold
John Moodie	Honeywood Farm

APPENDIX C: WORKSHOP SCHEDULE

CYCLE	WORKSHOP NUMBER	DATES	ACTIVITIES	WORKSHOP DAYS	PEOPLE PER GROUP	NUMBER OF GROUPS	NUMBER OF PEOPLE
	Inception Workshop	21-24 Jul 2003	Developing the Agricultural Landscape Developing the framework	3	35	1	35
CYCLE 1	WS1 (Incl. SGB members)	15 - 16 Oct 2003	Approve tables and figures Identify categories Identify and Establish work groups	2	45	1	45
CYCLE 2	WS2 Group 1	10 - 11 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
	WS3 Group 2	12 - 13 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
	WS4 Group 3	18 - 19 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
	WS5 Group 4	20 - 21 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
	WS6 Group 5	24 - 25 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
CYCLE 3	WS7 Group 1	12 - 13 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
	WS8 Group 2	14 - 15 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
	WS9 Group 3	19 - 20 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
	WS10 Group 4	21 - 22 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
	WS11 Group 5	26 - 27 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
CYCLE 4	WS12	16 - 18 Feb 2004	Consolidate unit standards Determine consistency across levels Work group per NQF level	3	3	5	15
CYCLE 5	WS13	23 - 25 Feb 2004	Write additional unit standards for Organic, hydroponic, permaculture, horticulture, agronomy	3	3	5	15
CYCLE 5	WS14	1 - 3 Mar 2004	Write additional unit standards for small-stock, large livestock, game, dairy and pigs and aquaculture	3	3	6	18
CYCLE 6	WS 15	24-26 Mar 2004	Refinement of unit standards and qualifications	3	5	1	5
CYCLE 6	WS 16	26-28 May 2004	Refinement and finalisation of unit standards and qualifications	3	5	1	5
TOTAL				31	84	77	273

APPENDIX D

MATRIX OF UNIT STANDARDS FROM NQF LEVEL 1-5

LEVEL 1

Level 1.1.1 Fundamental:	Collect Agricultural Data
Level 1.1.2 Fundamental:	Demonstrate an Understanding of the Basic Concepts of Sustainable Farming Systems
Level 1.2.1 Agri-business:	Apply Basic Agricultural Enterprise Selection Principles
Level 1.2.2 Agri-business:	Identify the Need for Capital and Understand the Need for the Recording of the Income and Different Costs in an Agri-business
Level 1.2.3 Agri-business:	Apply Basic Human Resource Management Principles and Practices Applicable in an Agricultural Environment
Level 1.2.4 Agri-business:	Handle Inputs and Stock in Agri-business
Level 1.2.5 Agri-business:	Demonstrate an Understanding of the Importance of Marketing
Level 1.2.6 Agri-business:	Define Production and Understand the Basic Activities of Production/Conversion in the Agri-business Environment
Level 1.3.1 Agricultural Practices:	Apply Basic Food Safety Practices
Level 1.3.2 Agricultural Practices:	Select, Use and Care for Hand Tools and Basic Equipment and Infrastructure
Level 1.3.3 Agricultural Practices:	Maintain Basic Water Quality
Level 1.3.4 Agricultural Practices:	Understand How Sustainable Farming Systems Conserve Natural Resources
Level 1.3.5 Agricultural Practices:	Apply Elementary Farm Layout and Infrastructure
Level 1.4.1 Animal Production:	Evaluate Basic External Animal Anatomy and Morphology
Level 1.4.2 Animal Production:	Recognise Basic Breeding Behaviour of Farm Animals
Level 1.4.3 Animal Production:	Recognise Defensive Behavior in Animals
Level 1.4.4 Animal Production:	Assess the Influence of the Environment on Sustainable Livestock Production
Level 1.4.5 Animal Production:	Apply Standard Animal Feeding Procedures
Level 1.4.6 Animal Production:	Observe and Handle Animals
Level 1.4.7 Animal Production:	Harvest Animal Products
Level 1.5.1 Plant Production:	Demonstrate a Basic Understanding of the Structure and Function of a Plant in Relation to Its Environment
Level 1.5.2 Plant Production:	Plant the Crop Under Supervision

Level 1.5.3 Plant Production:	Demonstrate an Understanding of the Physical and Biological Environment and Its Relationship to Sustainable Crop Production
Level 1.5.4 Plant Production:	Harvest Agricultural Crops
Level 1.5.5 Plant Production:	Operate and Maintain Irrigation Systems
Level 1.5.6 Plant Production:	Manipulate Plants
Level 1.5.7 Plant Production:	Recognise Pests, Diseases and Weeds on Crops
Level 1.5.8 Plant Production:	Propagate Plants
Level 1.5.9 Plant Production:	Fertilise Soil and Attend to Basic Plant Nutrition
Level 1.6.1 Elective:	Apply Basic Dairy Production Practices
Level 1.6.2 Elective:	Understand the Basic Practices of Beekeeping and the Benefit Thereof for Agriculture
Level 1.6.3 Elective:	Demonstrate an Understanding of Agri/Ecotourism as a System at Micro Level
Level 1.6.4 Elective:	Sort and Handle Animal Fibre
Level 1.6.5 Elective:	Perform Basic Routine Operations in a Defined Hydroponic Context
Level 1.6.6 Elective:	Understand Organic Market Requirements
Level 1.6.7 Elective:	Identify and Explain Permaculture Principles
Level 1.6.8 Elective:	Apply Basic Pig Husbandry Practices

LEVEL 2

Level 2.1.1 Fundamental:	Monitor, Collect and Collate Agricultural Data
Level 2.1.2 Fundamental:	Recognise and Identify the Basic Functions of the Ecological Environment
Level 2.2.1 Agri-business:	Identify and Recognise Factors Influencing Agricultural Enterprise Selection
Level 2.2.2 Agri-business:	Illustrate and Understand the Basic Layout of Financial Statements
Level 2.2.3 Agri-business:	Explain Principles of Human Resources Management and Practices in Agriculture
Level 2.2.4 Agri-business:	Control Inputs and Stock in Agribusiness
Level 2.2.5 Agri-business:	Apply Marketing Principles in Agriculture
Level 2.2.6 Agri-business:	Define and Understand Production Systems and Production Management
Level 2.3.1 Agricultural Practices:	Apply Crop Protection and Animal Health Products Effectively and Responsibly
Level 2.3.2 Agricultural Practices:	Utilise and Perform Minor Repair and Maintenance Tasks on Implements, Equipment and Infrastructure
Level 2.3.3 Agricultural Practices:	Monitor Water Quality
Level 2.3.4 Agricultural Practices:	Apply Sustainable Farming Practices to Conserve the Ecological Environment
Level 2.3.5 Agricultural Practices:	Apply Layout Principles for Conservation and Infrastructure

Level 2.3.6 Agricultural Practices:	Operate and Support a Food Safety and Quality Management System in the Agricultural Supply Chain
Level 2.4.1 Animal Production:	Evaluate External Animal Anatomy and Morphology
Level 2.4.2 Animal Production:	Identify Basic Breeding Practices for Farm Animals
Level 2.4.3 Animal Production:	Respond Correctly to Control Defensive Behaviour in Animals
Level 2.4.4 Animal Production:	Assess the Influence of the Environment on Sustainable Livestock Production
Level 2.4.5 Animal Production:	Understand Animal Nutrition
Level 2.4.6 Animal Production:	Observe and Inspect Animal Health
Level 2.4.7 Animal Production:	Apply Animal Products Harvesting Procedures
Level 2.5.1 Plant Production:	Understand the Structure and Functions of a Plant
Level 2.5.2 Plant Production:	Monitor the Establishment of a Crop
Level 2.5.3 Plant Production:	Demonstrate an Understanding of the Physical and Biological Environment and Its Relationship to Sustainable Crop Production
Level 2.5.4 Plant Production:	Harvest Agricultural Crops: Procedures
Level 2.5.5 Plant Production:	Operate and Maintain Specific Irrigation Systems
Level 2.5.6 Plant Production:	Apply Plant Manipulation Methods
Level 2.5.7 Plant Production:	Control Pests, Diseases and Weeds on All Crops Effectively and Responsibly
Level 2.5.8 Plant Production:	Demonstrate an Understanding of Plant Propagation
Level 2.5.9 Plant Production:	Understand Basic Soil Fertility and Plant Nutrition
Level 2.6.1 Elective:	Explain Dairy Production Cleanliness
Level 2.6.2 Elective:	Consider Plant Botany During the Placement of Bee Hives
Level 2.6.3 Elective:	Participate in Agri/Ecotourism Practices at Both Micro and Meso Levels to Tourists
Level 2.6.4 Elective:	Prepare a Shearing Shed for Shearing
Level 2.6.5 Elective:	Perform Routine Operations and Identify Basic Problems in Hydroponic Systems
Level 2.6.6 Elective:	Introduce Organic Certification and Internal Control Systems
Level 2.6.7 Elective:	Interpret and Illustrate Permaculture Principles
Level 2.6.8 Elective:	Explain Basic Pig Husbandry Practices
Level 2.6.9 Elective:	Store and Control Agrochemical Products Effectively and Responsibly
Level 2.6.10 Elective:	Harvest Natural Flora
Level 2.6.11 Elective:	Control Problem Animals

LEVEL 3

Level 3.1.1 Fundamental:	Supervise the Collection of Agricultural Data
Level 3.1.2 Fundamental:	Incorporate Basic Concepts of Sustainable Farming Systems Into Practical Farm Activities
Level 3.2.1 Agri-business:	Incorporate Basic Concepts of Sustainable Farming Systems Into Practical Farm Activities
Level 3.2.2 Agri-business:	Explain Costing and the Viability of an Agri-business
Level 3.2.3 Agri-business:	Explain Human Resource Policies and Procedures
Level 3.2.4 Agri-business:	Explain Store Inputs Categories, Labeling and Storage Methods
Level 3.2.5 Agri-business:	Explain Application of Marketing Principles Within an Alternative and Dynamic Agricultural Marketing Environment
Level 3.2.6 Agri-business:	Explain the Planning and Scheduling of Tasks in a Production Environment
Level 3.3.1 Agricultural Practices:	Apply Routine Maintenance and Servicing Plans and Procedures
Level 3.3.2 Agricultural Practices:	Monitor and Supervise a Food Safety and Quality Management System in the Agricultural Supply Chain
Level 3.3.3 Agricultural Practices:	Maintain Water Quality Parameters
Level 3.3.4 Agricultural Practices:	Monitor Natural Resource Management Practices
Level 3.3.5 Agricultural Practices:	Assist in Farm Planning and Layout for Conservation and Rainwater Harvesting
Level 3.4.1 Animal Production:	Explain Animal Anatomy and Physiology
Level 3.4.2 Animal Production:	Minimise Risk in Animal Management
Level 3.4.3 Animal Production:	Apply Advanced Breeding Practices for Farm Animals
Level 3.4.4 Animal Production:	Explain the Prevention and Treatment of Animal Diseases
Level 3.4.5 Animal Production:	Explain Elementary Animal Nutrition
Level 3.4.6 Animal Production:	Explain the Harvesting of Animal Products
Level 3.5.1 Plant Production:	Demonstrate a Basic Understanding of the Physiological Functioning of the Anatomical Structures of the Plant
Level 3.5.2 Plant Production:	Monitor and Co-ordinate the Harvesting of Agricultural Products
Level 3.5.3 Plant Production:	Monitor and Operation and Maintenance of Irrigation Systems
Level 3.5.4 Plant Production:	Monitor Plant Manipulation
Level 3.5.5 Plant Production:	Monitor Pests, Diseases and Weeds on Crops
Level 3.5.6 Plant Production:	Explain the Propagation of Plants
Level 3.5.7 Plant Production:	Manage Soil Fertility and Plant Nutrition
Level 3.6.1 Elective:	Explain Dairy Production

Level 3.6.2 Elective:	Manage Sites for Bee Keeping
Level 3.6.3 Elective:	Communicate Agri/Ecotourism Principles and Concepts Effectively and Adapt to Needs
Level 3.6.4 Elective:	Organise Shearing Shed Activities
Level 3.6.5 Elective:	Maintain and Support Sustainable Wild Flower Harvesting Practices
Level 3.6.6 Elective:	Introduction to Organic Certification and Internal Control Systems
Level 3.6.7 Elective:	Identify and Apply Permaculture Principles
Level 3.6.8 Elective:	Apply Pig Husbandry Practices
Level 3.6.9 Elective:	Apply Basic Artificial Insemination Practices
Level 3.6.10 Elective:	Apply Blade-shearing Skills and Prepare Blade-shearing Equipment
Level 3.6.11 Elective:	Apply Machine-shearing Skills and Prepare Shearing Equipment

LEVEL 4

Level 4.1.1 Fundamental:	Implement a Data Collection Plan
Level 4.1.2 Fundamental:	Plan and Maintain Environmentally Sound Agricultural Processes
Level 4.2.1 Agri-business:	Evaluate, Adjust and Implement Factors Influencing Agricultural Enterprises
Level 4.2.2 Agri-business:	Prepare a Whole Farm Budget and Establish a Proper Integrated Information System for an Agri-business
Level 4.2.3 Agri-business:	Assume Co-responsibility and Participation in Human Resource Management
Level 4.2.4 Agri-business:	Procure and Manage Agricultural Input
Level 4.2.5 Agri-business:	Develop and Manage an Agricultural Marketing Plan
Level 4.2.6 Agri-business:	Execute Sustainable Resource Use and Quality Control
Level 4.2.7 Agri-business:	Participate in the Development and Management of an Agri-business Plan
Level 4.2.8 Agri-business:	Give an Overview of the Industry Structure
Level 4.3.1 Agricultural Practices:	Implement a Food Safety and Quality Management System in the Agricultural Supply Chain
Level 4.3.2 Agricultural Practices:	Establish a Plan for the Monitoring, Safe Use and Maintenance of Equipment Implements, Technology and Infrastructure
Level 4.3.3 Agricultural Practices:	Manage Water Quality Parameters
Level 4.3.4 Agricultural Practices:	Implement a Natural Resource Management Plan
Level 4.3.5 Agricultural Practices:	Implement Integrated Farm Layout and Site Selection

Level 4.4.1 Animal Production:	Explain Functional Animal Anatomy and Physiology
Level 4.4.2 Animal Production:	Plan and Maintain Breeding Systems
Level 4.4.3 Animal Production:	Apply Procedures to Manage Damage Control in Animals and Victims
Level 4.4.4 Animal Production:	Explain Animal Classification and Natural History
Level 4.4.5 Animal Production:	Explain Intermediate Animal Nutrition
Level 4.4.6 Animal Production:	Implement Animal Health and Bio-security Programs
Level 4.4.7 Animal Production:	Manage the Quality of the Harvesting of Animal Products
Level 4.5.1 Plant Production:	Demonstrate a Basic Understanding of the Physiological Processes in Plant Growth and Development
Level 4.5.2 Plant Production:	Develop a Harvesting Plan for the Specific Agricultural Crop
Level 4.5.3 Plant Production:	Schedule the Operation and Maintenance of Irrigation Systems
Level 4.5.4 Plant Production:	Manage Plant Manipulation Methods of an Agricultural Crop
Level 4.5.5 Plant Production:	Apply Effective and Responsible Integrated Pest, Disease and Weed Control
Level 4.5.6 Plant Production:	Propagate plants in a Variety of Situations
Level 4.5.7 Plant Production:	Implement Soil Fertility and Plant Nutrition Practices
Level 4.6.1 Elective:	Implement Dairy Production Operations
Level 4.6.2 Elective:	Develop Bee Sites
Level 4.6.3 Elective:	Recognize Agri/Ecotourism Within the Strategic Environment
Level 4.6.4 Elective:	Manage Agricultural Export Logistics
Level 4.6.5 Elective:	Ensure Sustainable Wild Flower Harvesting Operations
Level 4.6.6 Elective:	Manage Organic Certification and Internal Control Systems
Level 4.6.7 Elective:	Implement a Permaculture Site Design
Level 4.6.8 Elective:	Apply Advanced Pig Husbandry Practices
Level 4.6.9 Elective:	Supervise Artificial Insemination Practices
Level 4.6.10 Elective:	Produce Crop in a Hydroponic System

LEVEL FIVE

Level 5.1.1 Fundamental:	Develop and Manage a Data Collection Plan to Support an Agricultural Enterprise
Level 5.1.2 Fundamental:	Integrate Sustainable Systems into Planning and Management Processes

Level 5.2.1 Agri-business:	Optimise and Integrate Various Farming Systems and Trends Within Related Enterprises
Level 5.2.2 Agri-business:	Analyse and Interpret the Financial Statements and Physical Records in an Agri-business to Generate Managerial Information
Level 5.2.3 Agri-business:	Implement and Manage Human Resource and Labour Relations Policies and Acts
Level 5.2.4 Agri-business:	Manage an Input Chain
Level 5.2.5 Agri-business:	Integrate Marketing Plans with the Business Process
Level 5.2.6 Agri-business:	Develop a Production and Strategic Plan for the Agricultural Business
Level 5.3.1 Agricultural Practices:	Manage and Control Resources in a Sustainable Manner
Level 5.3.2 Agricultural Practices:	Develop and Implement a Food Safety and Quality Management System
Level 5.3.3 Agricultural Practices:	Optimise Water Quality
Level 5.3.4 Agricultural Practices:	Design a Natural Resource Management Plan
Level 5.3.5 Agricultural Practices:	Plan a Farm and Select a Site
Level 5.4.1 Animal Production:	Evaluate Animal Anatomy and Physiology Systems
Level 5.4.2 Animal Production:	Integrate Sustainable Breeding and Selection Methods
Level 5.4.3 Animal Production:	Investigate Life Threatening Hazards When Handling Animals
Level 5.4.4 Animal Production:	Understand Juvenile Animal Rearing Practices
Level 5.4.5 Animal Production:	Apply and Plan Animal Nutrition
Level 5.4.6 Animal Production:	Evaluate Animal Health Systems
Level 5.4.7 Animal Production:	Harvest Animal Products: Animal Products Systems
Level 5.4.8 Animal Production:	Dissect Animals
Level 5.5.1 Plant Production:	Describe Biological Processes in Plant Physiology
Level 5.5.2 Plant Production:	Manage the Harvesting Process of Agricultural Crops
Level 5.5.3 Plant Production:	Develop Suitable Irrigation Systems
Level 5.5.4 Plant Production:	Develop and Implement Plant Manipulation Methods
Level 5.5.5 Plant Production:	Apply Integrated Pest Management Principles
Level 5.5.6 Plant Production:	A Propagation Plan for any Agricultural Production System
Level 5.5.7 Plant Production:	Manage Soil Systems
Level 5.6.1 Elective:	Manage Dairy Production Systems
Level 5.6.2 Elective:	Manage Hive Placement and Bee Pollination
Level 5.6.3 Elective:	The Optimisation of Agri/Ecotourism Strengths and Opportunities and Negation of Threats and Weaknesses
Level 5.6.4 Elective:	Evaluate and Coordinate Area Wide Sustainable Wild Flower Harvesting

Level 5.6.5 Elective:	The Effective and Responsible Arial Application of Agrochemical Products
Level 5.6.6 Elective:	Effective and Responsible Advice, Recommendation and Sale of Agrochemical Products
Level 5.6.7 Elective:	Develop, Implement and Manage a Permaculture Site Design
Level 5.6.8 Elective:	Effective and Responsible Control of Problem Animals
Level 5.6.9 Elective:	Manage a Hydroponic Production Unit

LEVEL 1.1.1**FUNDAMENTAL**

TITLE	:	COLLECT AGRICULTURAL DATA
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to collect routine agricultural data on instruction and will also be able to apply prescribed methods of data collection for agricultural purposes. In addition the learner will be well positioned to extend their learning and practice into more complex areas of data collection.

Competent learners will be fully conversant with a narrow range of data collection procedures and contribute to the agricultural landscape in this regard.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to information systems and technology.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-oriented approach to agriculture

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standard

Functional literacy and numeracy.

NQF 1: Select, use and care for hand tools and basic equipment and infrastructure

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Demonstrate knowledge of different elementary methods of data collection.
 - 2 Collect and report on collected agricultural data by using prescribed collection methods.
 - 3 Apply methods of recording collected data using various types of technology.
 - 4 Use and maintain data collection equipment correctly.
 - 5 Apply health and safety measures applicable to the collection method and equipment.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate knowledge of different elementary methods of data collection.

Range: Different methods may include, but are not restricted to: interpreting a gauge, measuring, observing, collecting samples, counting, and scouting.

Assessment criteria:

- 1.1 Different methods of data collection are described correctly.
 - 1.2 The advantages and disadvantages of different methods are described.
-
2. Collect and report on collected agricultural data by using prescribed collection methods.

Range: Agricultural data may include, but is not limited to: biological, physical and economical data, such as pests, diseases, agro-chemicals, crops, stock, economic, and maintenance information.

Assessment criteria:

- 2.1 The prescribed data collection methods are applied used correctly.
- 2.2 Data is collected accurately.
- 2.3 The required reporting format is applied..
- 2.4 Basic deviances in data are identified, noted and reported.

3. Use and maintain data collection equipment correctly.

Range: Recording tools may include, but are not restricted to pen and paper, voice recorders, electronic tools, pin boards, and colour codes.

Assessment criteria:

- 3.1 Correct use of data collection equipment is explained.
- 3.2 Correct method of storage of the data collection equipment is explained.
- 3.3 Minor repairs to the data collection equipment are performed correctly.
- 3.4 Collection equipment is cleaned correctly.

4. Apply health and safety measures applicable to the collection method and equipment.

Assessment criteria:

- 4.1 Health and safety measures required for the safe collection of data are explained.
- 4.2 Appropriate protective garments and tools are used during data collection.
- 4.3 Applicable hygiene standards are maintained throughout the process of data collection.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1, 3, 4 and 5.
2. **Teamwork** relates to specific outcomes 2.
3. **Self-organisation and management** relates to specific outcomes 2, 3, 4 and 5.
4. **Information evaluation** relates to specific outcomes 1 to 5.
5. **Communication** relates to specific outcomes 1 to 5.
6. **Use science and technology** relates to specific outcomes 1 to 5.
7. **Inter-relatedness of systems** relates to specific outcomes 4 to 5.
8. **Self-development** relates to specific outcomes 1, 3 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The qualifying learner is able to demonstrate a basic knowledge and understanding of:

- 1 Different methods of data collection.
- 2 Different methods of recording data.
- 3 Different methods of presenting data.
- 4 The names and functions of data collection tools and equipment.
- 5 The descriptions and properties of the source of the data being collected.
- 6 The description and properties of the data collection equipment.
- 7 Sensory cues related to the measurement of the data, the data collection equipment and the source of the data.
- 8 The purpose for learning about Information technology.
- 9 The purpose of the data being collected.
- 10 The correct procedures for collecting the data.
- 11 All relevant rules, laws and regulations related to the source of the data and the data itself.

12 The relationship between the data and information generated by it.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.1.2**FUNDAMENTAL**

TITLE : DEMONSTRATE AN UNDERSTANDING OF THE BASIC CONCEPTS OF SUSTAINABLE FARMING SYSTEMS

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 1

CREDIT : 4

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to recognise the basic concepts of sustainable farming practices and be able to perform basic tasks in applying sustainable farming practices.

In addition they will be well positioned to extend their learning and practice into other areas of natural resource use and farming systems.

Competent learners will understand the environmental context of sustainable agricultural production.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Recognise basic environmental patterns and processes.
 2. Demonstrate an elementary comprehension of farming systems and design.
 3. Identify and describe measurable indicators of sustainability.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Recognise basic environmental patterns and processes.

Range: Basic environmental patterns and processes include soils, climate, water sources, topography, and ecosystems, and pertain to local conditions only.

Assessment criteria:

- 1.1 Local veld types are recognised.
- 1.2 Comprehension of the importance of the carrying capacity of local veld types is demonstrated.
- 1.3 Local weather and climate are recognised and the role in farming practices is explained.
- 1.4 The importance of bio-diversity in local farming systems is explained.

- 2 Demonstrate an elementary comprehension of farming systems and design.

Range: Internal and external inputs; local, regional and export markets; diverse income sources; needs and aspirations of people.

Assessment criteria:

- 2.1 An awareness of basic input and output sources is demonstrated.
- 2.2 Knowledge of local markets and other markets is demonstrated.
- 2.3 Possible income resources are identified and described.
- 2.4 The needs and aspirations of local communities/ people are explained.
- 2.5 An understanding of sustainability as a trade-off between productivity and conservation of resources is demonstrated.

- 3 Identify and describe measurable indicators of sustainability.

Range: Measurable indicators include social, economic and ecological.

Assessment criteria:

- 3.1 Social indicators are identified and described in terms of their need and usefulness.
- 3.2 Economic indicators are identified and described in terms of their need and usefulness.
- 3.3 Ecological indicators are identified and described in terms of their need and usefulness.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork** relates to specific outcomes 1-3.
2. **Information evaluation** relates to specific outcomes 1-3.
3. **Communication** relates to specific outcome 2.
4. **Inter-relatedness of systems** relates to specific outcomes 1-3.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Basic concepts of sustainable farming systems.
- 2 Basic environmental patterns and processes.
- 3 Elementary comprehension of farming systems and designs.
- 4 Measurable indicators of sustainability.
- 5 Local veld types.
- 6 Importance of carrying capacity of local veld types.
- 7 Local weather and climate.
- 8 Basic local ecosystems.
- 9 Importance of biodiversity in local farming systems.
- 10 Basic input sources.
- 11 Markets (local and other).
- 12 Income sources on a farm.
- 13 Needs and aspirations of local communities.
- 14 Social indicators.
- 15 Economic indicators.
- 16 Ecological indicators.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.2.1**AGRI-BUSINESS****TITLE****APPLY BASIC AGRICULTURAL
ENTERPRISE SELECTION PRINCIPLES**

SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

Qualifying learners will be able to demonstrate an understanding the basic principles of enterprise selection. In addition they will be well positioned to extend their learning and practice into crop production and animal production systems.

This training will benefit the profession by equipping learners with adequate skills to have input into enterprise selection and production to improve productivity and performance.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to enterprise planning.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Name natural resources required for the selection of the relevant enterprise.
 2. Describe infrastructure requirements for the selection of the relevant enterprise.
 3. Identify appropriate crops and/or animals for the relevant enterprise.
 4. Recognise the production cycle within relevant enterprise.
 5. Identify harvest practice within the relevant enterprise.
 6. Describe post harvest practice within relevant enterprise.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Name natural resources required for the selection of the relevant enterprise.

Range: Natural resources include soil, water, climate, vegetation and topography.

Assessment criteria:

- 1.1 Soils are examined and suitability for cultivation is assessed.
- 1.2 Water sources are identified.
- 1.3 Climatic conditions are identified and described.
- 1.4 Basic vegetation types are identified.
- 1.5 The topography of the site is recognised and described.

2. Describe infrastructure requirements for the selection of the relevant enterprise.

Range: Infrastructure requirements include fencing, housing, water supply, electricity, animal handling facilities and access.

Assessment criteria:

- 2.1 Types of infrastructure are described.
- 2.2 The role and function of infrastructure is understood.
- 2.3 The availability of infrastructure is determined.
- 2.4 The suitability of landscape for infrastructure is determined.

3. Identify appropriate crops and/or animals for the relevant enterprise.

Range: All livestock or crops on the farm or garden within a community.

Assessment criteria:

- 3.1 Different livestock or crop types are described.

- 3.2 Characteristics of the different types are explained.
- 3.3 Different uses of the different types are identified.
- 3.4 The suitability of infrastructure for livestock or crops is determined.

4. Identify production cycle within relevant enterprise.

Range: All enterprises within the boundaries of the farm within the community

Assessment criteria:

- 4.1 Characteristics of a production cycle are described.
- 4.2 The different production cycles are compared.
- 4.3 The appropriate production cycle is described correctly.
- 4.4 Implementation of the production cycle is observed and reported on.

5. Identify harvest practice within the relevant enterprise.

Range: All enterprises within the boundaries of the farm within the community.

Assessment criteria:

- 5.1 A characteristic of harvesting practices is described.
- 5.2 Harvesting practices are understood.
- 5.3 Importance of health and hygiene is understood.
- 5.4 Importance of quality is understood.

6. Identify post harvest practice within relevant enterprise.

Range: All enterprises within the boundaries of the farm within the community

Assessment criteria:

- 6.1 Characteristics of post harvest practices are described.
- 6.2 Post-harvesting practices are understood.
- 6.3 Importance of health and hygiene is understood.
- 6.4 Importance of quality is understood.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
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- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Interpreting Information:** relates to specific outcomes 1 to 6.
2. **Self-development:** relates to specific outcomes 1 to 6 .

3. **Teamwork:** relates to specific outcomes 1 to 6.
4. **Communication:** relates to specific outcomes 1 to 6.
5. **Science and Technology:** relates to specific outcomes 1 to 6.
6. **Professional development:** relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The role of natural resources.
2. The role of Infrastructure.
3. The role and importance of Stock.
4. The importance of Production cycles.
5. The importance of Harvesting practices.
6. The role and importance of Post harvest practices.
7. Basic farm practices.
8. Basic management skills.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.3.1**AGRICULTURAL PRACTICES**

TITLE	:	APPLY BASIC FOOD SAFETY PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	1
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to apply sound food safety principles by identifying risk factors in food contamination and applying preventative measures to ensure product safety.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of food safety principles in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Apply good personal hygiene practices.
2. Demonstrate an understanding of risk factors in food contamination.
3. Apply preventative measures against food contamination.
4. Understand and adhere to warning signs regarding product safety (where applicable).

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Apply good personal hygiene practices.

Assessment criteria:

- 1.1 Effective personal hygiene practices are demonstrated.
(Range: Personal hygiene practices include but are not limited to correct way of washing hands; when to wash hands; sanitary requirements; drinking water suitable for human consumption)
- 1.2 Current health status is judged and a decision whether to report is made.
(Range: Health status may include but is not limited to open wounds, communicable diseases, diseases that need to be declared according to legislation).

2. Demonstrate an understanding of risk factors in food contamination.

Assessment criteria:

- 2.1 Risk factors pertaining to food contamination are identified.
(Range: Risk factors include examples of physical, chemical and microbiological factors).
- 2.2 The importance of food safety practices with regards to export and marketing is explained.

3. Apply preventative measures against food contamination.

Assessment criteria:

- 3.1 Preventative measures are identified and explained.
(Range: Preventative measures include but are not limited to empty chemical containers; waste disposal; clean working area; open wounds; hand washing).
- 3.2 The implications of non-application of preventative measures are explained.

4. Understand and adhere to warning signs regarding product safety (where applicable).

Assessment criteria:

- 4.1 Warning signs are interpreted correctly and respected.
(Range: Warning signs include but are not limited to toxins; danger signs; harvest intervals; with holding periods).

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 and 3.
2. **Self-organisation and management** relates to specific outcomes 1-4.
3. **Information evaluation** relates to specific outcomes 2-4.
4. **Communication** relates to specific outcomes 4.
5. **Inter-relatedness of systems** relates to specific outcomes 2.
6. **Team work:** relates to specific outcomes 2, 3 and 4
7. **Science and Technology:** relates to specific outcomes 1-4.
8. **Self development:** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The qualifying learner is able to demonstrate a basic knowledge and understanding of:

1. Effective personal hygiene practices.
2. Risk factors related to food safety.
3. Basic principles of food safety.
4. Food borne illnesses.
5. Hygiene principles.
6. Impact of food safety in trade.
7. The purpose for the study of Food Safety.
8. Names and terms particular to food safety practices.
9. Procedures in place to ensure food safety.
10. All relevant legislation related to food manufacture and food safety.
11. The relationship between food, food safety and food production.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.3.2**AGRICULTURAL PRACTICES**

TITLE	:	SELECT, USE AND CARE FOR HAND TOOLS AND BASIC EQUIPMENT AND INFRASTRUCTURE
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to select hand tools and basic equipment that are appropriate to a specific agricultural task. The learner will be able to operate, care for and store basic tools and equipment in a safe and responsible manner.

In addition learners will be well positioned to extend their learning and practice into the use of more complex tools and equipment in other areas of agriculture.

Competent learners will be fully conversant with basic safety procedures and practices as well as good practices regarding the use and storage of basic tools and equipment.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of agricultural equipment, technology, implements and infrastructure in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Select and use appropriate equipment and implements for a specific agricultural task.
 2. Recognise and act on problems related to the use of hand tools and basic equipment in an agricultural environment.
 3. Perform routine maintenance tasks to hand tools and basic equipment that are not functioning properly.
 4. Store hand tools and basic equipment correctly and safely.
 5. Identify and apply the correct safety measures when using hand tools and basic agricultural equipment.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Select and use appropriate equipment and implements for a specific agricultural task.

Range: The hand tools used may range from picks, shovels and spades. Basic equipment may include, but is not limited to hand operated sprayers, smaller hand tools and simple power tools. Tasks may range from, but are not limited to, soil preparation, transport, harvesting, the moving of animals, etc.

Assessment criteria:

- 1.1 The appropriate hand tool or equipment is selected to perform a specified task.
- 1.2 The hand tool or basic piece of equipment is used correctly.
- 1.3 The learner explains why the hand tool or basic piece of equipment was selected.

2. Recognise and act on problems related to the use of hand tools and basic equipment in an agricultural environment.

Range: Problems related to the use of hand tools and basic equipment refers to elementary malfunctions, such as tools becoming blunt, sprayers becoming blocked or screws and bolts becoming loose. The correct course of action may be to discontinue using the equipment or, if appropriate, to repair the hand tool or equipment.

Assessment criteria:

- 2.1 A problem whilst using a basic tool or piece of basic equipment is identified.
- 2.2 The appropriate course of action is identified.
- 2.3 Hand tools or basic equipment requiring additional repairs and maintenance are reported to the relevant person.

- 3. Perform routine maintenance tasks to agricultural equipment.

Range: Routine maintenance tasks refer to on-going, scheduled tasks that are performed in order to keep hand tools and basic equipment functioning properly. It could include tasks such as unblocking pipes and nozzles, sharpening blunt tools, cleaning nozzles on sprayers, checking water and oil levels in machinery, cables and plugs.

Assessment criteria:

- 3.1 Basic equipment is cleaned and maintained according to prescribed methods.
- 3.2 Simple repair tasks on agricultural equipment are performed.
- 3.3 Malfunctioning equipment are reported timeously.

- 4.
- 5. Store equipment correctly and safely.

Range: Equipment may range from, but is not limited to, hand tools and power tools. Implements may range from, but are not limited to, hand operated machinery and farm vehicles, such as tractors and graders.

Assessment criteria:

- 4.1 Hand tools and equipment are cleaned before storage.
- 4.2 Hand tools and equipment are stored according to prescribed methods and safety requirements.
- 4.3 The purpose of specified storage requirements are explained.

- 5. Identify and apply the correct safety measures when using hand tools and basic agricultural equipment and implements.

Range: Safety measures refer to preventing injury to oneself and others, and to damage to the equipment. These may include, but are not limited to, the use of protective clothing and the correct handling of equipment.

Assessment criteria:

- 5.1 Safety measures are correctly identified.
- 5.2 The appropriate protective clothing are identified and used.
- 5.3 Possible injuries resulting from the incorrect handling of tools and equipment are identified.
- 5.4 Possible damage through incorrect use and handling of equipment is identified.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to Specific Outcomes 1, 2, 3 and 4.
2. **Teamwork** relates to specific outcomes 4.
3. **Self-organisation and management** relates to specific outcomes 1-5.
4. **Information evaluation** relates to specific outcomes 2 - 4.
5. **Communication** relates to specific outcomes 2 and 3.
6. **Use science and technology** relates to specific outcomes 1 - 5.
7. **Inter-relatedness of systems** relates to specific outcomes 3 - 5.
8. **Self-development** relates to specific outcomes 3 and 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic safety procedures related to hand tools and basic equipment.
2. How hand tools and basic equipment work (in order to recognise malfunctions and to perform elementary repairs and maintenance).
3. Basic identification of wear and tear on tools and equipment.
4. Understand the purpose and need for the study of tools.
5. Understand the workings of the Occupational Health and Safety Act as it applies to the specific usage of tools.
6. Understand the implications of the misuse, abuse and failure to maintain tools on the efficiency, effectiveness of the tool.
7. Understand the implications of the misuse, abuse and failure to maintain tools on the safety of the operator and/or users
8. Understand the application and use of the specific tools.
9. Understand the procedure to be followed regarding the reporting of problems related to tools and their status.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.3.3**AGRICULTURAL PRACTICES****TITLE****MAINTAIN BASIC WATER QUALITY**

SAQA	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	1
FIELD	:	AGRICULTURE AND CONSERVATION
SUB-FIELD	:	PRIMARY AGRICULTURE
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

Learner must demonstrate an ability to observe and maintain basic water quality and the ability to work with the technical systems that control certain quality factors in water. In addition they will be well positioned to extend their learning and practice into other areas of water management and agriculture.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of water quality practices in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instill a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Collect Agricultural Data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate a basic ability to sample and observe water quality.
2. Demonstrate an ability to perform maintenance tasks on certain operational technical systems.
3. Demonstrate the ability to handle systems to maintain water quality.
4. Record basic observations and applications regarding water quality.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate a basic ability to sample and observe water quality.

Range: Quality factors for water include but are not limited to temperature, dissolved gasses such as oxygen and carbon dioxide, COD, water insoluble solids and dissolved minerals and organic load.

Assessment criteria:

- 1.1 The use of the recalling of tasks associated with the control of water quality is demonstrated.
- 1.2 Water quality sampling techniques is demonstrated.
- 1.3 The maintenance of water sampling equipment is demonstrated.
- 1.4 Information on the sampling of water quality is recorded and provided.

2. An ability to perform maintenance tasks on certain operational technical systems is demonstrated.

Range: Including but not limited to water aeration, inlet and outlet screening, inlet and outlet level and flow control, degassing and filtration and temperature.

Assessment criteria:

- 2.1 An ability to perform basic maintenance tasks on certain operational technical systems that control and maintain specific water quality is demonstrated.
- 2.2 The ability to identify the need for the maintenance work to be done is demonstrated.
- 2.3 Information regarding the maintenance task being performed on water quality systems is recorded and provided.

3. The ability to handle systems to maintain water quality is demonstrated.

Range: Quality factors for water include but are not limited to temperature, dissolved gasses such as oxygen and carbon dioxide, COD, water insoluble solids and dissolved minerals and organic load.

Assessment criteria:

- 3.1 Tasks associated with the maintenance of systems that control water quality are demonstrated.
- 3.2 Water systems maintenance is demonstrated.
- 3.3 Information on the maintenance of water quality control systems is recorded and provided.

- 4. Record basic observations and applications regarding water quality.

Range: Including but not limited to water aeration, inlet and outlet screening, inlet and outlet level and flow control, degassing and filtration and temperature.

Assessment criteria:

- 4.1 The ability to record all necessary data regarding water quality management is demonstrated.
- 4.2 The ability to report on the recording of water quality observations and data is demonstrated.
- 4.3 An understanding for the need to record and report data on water quality is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Team Work** refers to specific outcome 4.
2. **Self Management** refers to specific outcomes 1-4.
3. **Communication** refers to specific outcome 4
4. **Problem Solving** refers to specific outcome 4
5. **Science and Technology** refers to specific outcomes 1-4.
6. **Information evaluation** refers to specific outcomes 2, 3 and 4.
7. **Inter relatedness** refers to specific outcomes 1-4.
8. **Self development** refers to specific outcomes 3 and 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and terms related to water quality.
2. Attributes and properties of water related to its quality.
3. Sensory cues related to water quality and water quality maintenance systems.
4. The purpose of sampling water and maintaining water quality.
5. Implications related to water quality on the operation.
6. Rules related to the sampling of water quality measurements.
7. Recording techniques.
8. Basic reporting skills.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.3.4**AGRICULTURAL PRACTICES**

TITLE : **UNDERSTAND HOW SUSTAINABLE FARMING SYSTEMS CONSERVE NATURAL RESOURCES**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 1

CREDIT : 4

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

Learners achieving this unit standard will be able to explain the importance of maintaining and increasing biodiversity, and the role of natural resource management in sustainable agricultural practices.

Competent learners will have a general idea of the most important agricultural and conservation regulations, thus strengthening sustainable agricultural practices and benefiting the environment.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of natural resource management in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of the impact of farming operations and practices on the environment.
 2. Identify farm and domestically generated waste and pollutants and apply environmentally friendly methods of disposal and/or re-use.
 3. Apply practices to maintain and increase biodiversity.
 4. Understand how to control invasive alien plant species and noxious weeds.
 5. Prevent the spread of veld fires using on farm firebreaks and/or fireguards.
 6. Apply basic control and preventative measures to enhance the soil's capacity to hold water and prevent water run-off.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Demonstrate an understanding of the impact of farming operations and practices on the environment.

Assessment criteria:

- 1.1 The farmer's responsibilities of soil-, water- and animal-care are explained.
 - 1.2 Elements of farming operations affecting the environment are identified and described.
(Range: Effects on the environment include soil erosion, water pollution and wastage, invasive plants, fire, flood and population encroachment, endangered plants and endangered fauna.)
 - 1.3 Invasive and endangered fauna and flora species are listed and identified.
(Range: Fauna and flora species of the farm or direct environment.)
 - 1.4 Examples of environmentally friendly agricultural practices are explained.
Range: Soil and water conservation.
-
- 2 Identify farm and domestically generated waste and pollutants and apply environmentally friendly methods of disposal and/or re-use.

Assessment criteria:

- 2.1 Farm generated waste and pollutants are identified and their effects are explained.
(Range: Domestic waste products include but are not limited to body fluids and solids, wash water and household waste. Farm generated waste and

- pollutants include fertilisers, chemicals, fuels and lubricants, packaging and product waste).
- 2.2 Pollution prevention measures are identified and their effects on the environment are explained.
(Range: Fertiliser and chemical management, recycling, machinery maintenance and basic rubbish dump management).
- 2.3 Correct methods of disposal are applied to the waste product and pollutant.
(Range: Clarity on substances that should be taken to a proper disposal facility).
- 3 Apply practices to maintain and increase biodiversity.

Range: Natural resources include water, soil, fauna, flora and energy.

Assessment criteria

- 3.1 The importance of maintaining and increasing natural resources are explained.
(Range: Natural resources include energy (wood, sun and electricity), water (rain, surface and groundwater), soil, fauna, flora (trees, vegetation and medicinal plants) and fire management practices).
- 3.2 Consequences of not maintaining natural resources are explained.
(Range: Lack of ecosystem stability resulting from decrease in species diversity; disease, genetic diversity loss, lost unknown pharmaceutical and breeding opportunities from plants and animals with unknown properties.)
- 4 Control invasive alien plant species and noxious weeds.

Range: As outlined by the local Department of Agriculture (Agricultural Research Council guidelines).

Assessment criteria:

- 4.1 Alien plant species are correctly identified.
- 4.2 Methods of clearing are correctly applied (first clear least invaded areas, follow up and maintain; then expand into intensively infested areas).
- 4.3 Cleared plant material is sorted and disposed of or re-used as mulch, compost, etc. as appropriate.
- 5 Prevent the spread of veld fires using on farm firebreaks and/or fireguards.

Range: Fireguards include fire resistant plants, water and stones.

Assessment criteria:

- 5.1 Available material or plants are used as and where appropriate.
- 5.2 Vegetation that might spread fire is cleared.
- 5.3 Stones are packed to form a proper barrier.
- 6 Apply basic control and preventative measures to enhance the soil's capacity to hold water and prevent water run-off.
- 7

Range: Control measures include but are not limited to gabions, mulch, plant and vegetation material, etc.

Assessment criteria:

- 7.1 Mulching to cover soil for water and soil conservation is used.
- 7.2 The soil's run-off and capacity to hold water are prevented and improved.
- 7.3 Gabions are correctly erected.
- 7.4 Vegetation is re-established.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-5.
2. **Teamwork** relates to specific outcomes 1-5.
3. **Self-organisation and management** relates to specific outcomes 1-5.
4. **Information evaluation** relates to specific outcomes 1-5.
5. **Communication** relates to specific outcomes 1 and 2.
6. **Use science and technology** relates to specific outcomes 1-5.
7. **Inter-relatedness of systems** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic principles of natural resources management.
2. Components of the water cycle.
3. Components of ecosystems.
4. Components of an energy cycle.
5. Basic principles of sustainability.
6. Local veld types and their carrying capacities.
7. Classification of fauna and flora relevant to the direct environment.
8. Alien species relevant to the direct environment.
9. Basic environmental patterns and processes.
10. Local weather and climate, and seasonal conditions of the area.
11. Basic local ecosystems.
12. Importance of biodiversity in local farming systems.
13. Sources of water.

14. Sources of energy (renewable and non renewable).
15. Types of pollution.
16. Basic fire fighting rules.
17. Definitions.
18. Terminology.
19. Occupational Health & Safety Act.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.3.5**AGRICULTURAL PRACTICES**

TITLE	:	APPLY ELEMENTARY FARM LAYOUT AND INFRASTRUCTURE
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard should be able to apply basic physical farm layout tasks, including the construction of infrastructure for the specific farm system, environment and enterprise.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Understand how sustainable farming systems conserve natural resources.
NQF 1: Demonstrate an understanding of the basic concepts of sustainable farming systems.

SPECIFIC OUTCOMES

A person assessed as competent on this unit standard will be able to:

1. Recognise veld types, planted pasture and arable land, and understand the need for the conservation of the related natural resources in the layout of the farm.
2. Recognise the animal life, the impact of farm animals and humans and understand the need for the conservation of related natural resources in the layout of the farm.
3. Recognise the need to plan infrastructure to limit the impact on natural resources and ensure sustainable resource use.
4. Construct prevention structures and elementary infrastructure as planned for farm layout.
5. Maintain prevention structures and report major problems to a supervisor.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

A person assessed as competent against this standard will be able to:

1. Recognise veld, planted pasture and arable land, and understand the need to fence vegetation types separately.

Range: Assess vegetation type and slope, as well as current and past land use.

Assessment criteria:

- 1.1 The main natural resources in the local area are identified, and alien plants or weeds that occur and need to be controlled are recognised.
- 1.2 Point out structures that should be erected and respected to conserve the natural resources, and not to contribute to degradation over time.

- 2 The animal life, the impact of farm animals and humans are recognised and the need for the conservation of related natural resources in the layout of the farm is understood.

Assessment criteria:

- 2.1 The main animal species and/or livestock in the local area are identified, and those that occur and need to be cared for or controlled are recognised.
 - 2.2.1 Structures that should be erected and respected to conserve the natural resources are pointed out.
 - 2.2.2 An understanding of the reciprocal effect of the natural environment, animals and humans in the use of structures not to contribute, over time, to degradation is demonstrated.

- 3 The need to plan the farm and infrastructure to limit the impact on natural resources and ensure sustainable resources use are recognised.

Range: Only the elementary physical characteristics of natural resources of importance in relation to infrastructure.

Assessment criteria:

- 3.1 An understanding of the reciprocal effect of the natural environment, animals and humans is demonstrated.
- 3.2 An understanding of the placement of structures and its use not to contribute to degradation of the environment over time is demonstrated.

- 4 Construct prevention structures and elementary infrastructure as planned for farm layout

Range: Understand the need for elementary structures and proper placement to prevent damage to the structures and degradation to the environment.

Assessment criteria:

- 4.1 An elementary structure is measured and constructed.
- 4.2 Structures are placed in position and basic principles and reasoning for conservation are explained.
- 4.3 An understanding for stabilizing structures under extreme circumstances is demonstrated.

- 5 Maintain prevention structures and report major problems to a supervisor.

Range: Degradation and erosion of natural resources and sources for degradation in nature include, but are not restricted to, wind and water. Prevention measures by using structures.

Assessment criteria:

- 5.1 The ability to identify and deal with minor degradation or erosion problems is demonstrated.
- 5.2 An understanding of required reporting procedures to the supervisor is demonstrated.
- 5.3 Elementary maintenance tasks to structures are demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 – 4.
2. **Self-management:** relates to specific outcomes 1 – 4.
3. **Interpreting Information:** relates to specific outcomes 1 – 4.
4. **Communication:** relates to specific outcome 4.
6. **Self-development:** relates to specific outcomes 1 – 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Follow instructions to carry out routine tasks relating to sustainable land-use practices and soil erosion prevention measures.
2. Distinguish between infrastructure applications and soil erosion prevention measures that are fully functional and those that have minor faults, and report these to a supervisor.
3. Carry out minor repairs to infrastructure applications and soil erosion prevention measures under supervision.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.3.5**AGRICULTURAL PRACTICES**

TITLE	:	APPLY ELEMENTARY FARM LAYOUT AND INFRASTRUCTURE
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard should be able to apply basic physical farm layout tasks, including the construction of infrastructure for the specific farm system, environment and enterprise.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Understand how sustainable farming systems conserve natural resources.
NQF 1: Demonstrate an understanding of the basic concepts of sustainable farming systems.

SPECIFIC OUTCOMES

A person assessed as competent on this unit standard will be able to:

1. Recognise veld types, planted pasture and arable land, and understand the need for the conservation of the related natural resources in the layout of the farm.
2. Recognise the animal life, the impact of farm animals and humans and understand the need for the conservation of related natural resources in the layout of the farm.
3. Recognise the need to plan infrastructure to limit the impact on natural resources and ensure sustainable resource use.
4. Construct prevention structures and elementary infrastructure as planned for farm layout.
5. Maintain prevention structures and report major problems to a supervisor.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

A person assessed as competent against this standard will be able to:

1. Recognise veld, planted pasture and arable land, and understand the need to fence vegetation types separately.

Range: Assess vegetation type and slope, as well as current and past land use.

Assessment criteria:

- 1.1 The main natural resources in the local area are identified, and alien plants or weeds that occur and need to be controlled are recognised.
- 1.2 Point out structures that should be erected and respected to conserve the natural resources, and not to contribute to degradation over time.

- 2 The animal life, the impact of farm animals and humans are recognised and the need for the conservation of related natural resources in the layout of the farm is understood.

Assessment criteria:

- 2.1 The main animal species and/or livestock in the local area are identified, and those that occur and need to be cared for or controlled are recognised.
 - 2.2.1 Structures that should be erected and respected to conserve the natural resources are pointed out.
 - 2.2.2 An understanding of the reciprocal effect of the natural environment, animals and humans in the use of structures not to contribute, over time, to degradation is demonstrated.

- 3 The need to plan the farm and infrastructure to limit the impact on natural resources and ensure sustainable resources use are recognised.

Range: Only the elementary physical characteristics of natural resources of importance in relation to infrastructure.

Assessment criteria:

- 3.1 An understanding of the reciprocal effect of the natural environment, animals and humans is demonstrated.
- 3.2 An understanding of the placement of structures and its use not to contribute to degradation of the environment over time is demonstrated.

- 4 Construct prevention structures and elementary infrastructure as planned for farm layout

Range: Understand the need for elementary structures and proper placement to prevent damage to the structures and degradation to the environment.

Assessment criteria:

- 4.1 An elementary structure is measured and constructed.
- 4.2 Structures are placed in position and basic principles and reasoning for conservation are explained.
- 4.3 An understanding for stabilizing structures under extreme circumstances is demonstrated.

- 5 Maintain prevention structures and report major problems to a supervisor.

Range: Degradation and erosion of natural resources and sources for degradation in nature include, but are not restricted to, wind and water. Prevention measures by using structures.

Assessment criteria:

- 5.1 The ability to identify and deal with minor degradation or erosion problems is demonstrated.
- 5.2 An understanding of required reporting procedures to the supervisor is demonstrated.
- 5.3 Elementary maintenance tasks to structures are demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 – 4.
2. **Self-management:** relates to specific outcomes 1 – 4.
3. **Interpreting Information:** relates to specific outcomes 1 – 4.
4. **Communication:** relates to specific outcome 4.
6. **Self-development:** relates to specific outcomes 1 – 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Follow instructions to carry out routine tasks relating to sustainable land-use practices and soil erosion prevention measures.
2. Distinguish between infrastructure applications and soil erosion prevention measures that are fully functional and those that have minor faults, and report these to a supervisor.
3. Carry out minor repairs to infrastructure applications and soil erosion prevention measures under supervision.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.4.1**ANIMAL PRODUCTION****TITLE****EVALUATE BASIC EXTERNAL ANIMAL ANATOMY AND MORPHOLOGY**

SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to visually evaluate animals externally with respect to their basic anatomical characteristics and morphological systems. In addition they will be well positioned to extend their learning and practice into other areas of animal production, ensuring efficient and effective animal production.

Learners will gain specific knowledge and skills in animal anatomy and physiology and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

RANGE

Anatomical systems include but are not limited to the following: external systems and covering, sensory systems, skeleton, musculature, nervous system, cardio-vascular system, digestive system, lymph, reproductive system and the endocrine and glandular systems. It is assumed that this learner operates under supervision.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning assumed.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and name the class, species and type of animal according to criteria and under supervision.
 2. Identify and name the components and the externally visible divisions or parts of an animal and identify gross abnormalities therein.
 3. Understand the basic concepts of further anatomical systems within animals according to criteria.
 4. Identify and describe the morphological attributes of animals by which they are classified.
 5. Identify and describe the animal's life cycle.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and name the class, species and type of animal according to criteria and under supervision.

Range: This identification includes, but is not limited to fish, birds, mammals, insects, crustaceans, reptiles, molluscs and amphibians.

Assessment criteria:

- 1.1 Animal nomenclature, class, type and gender are discussed, named and identified.
 - 1.2 The specific animal is evaluated according to basic morphology and external characteristics.
 - 1.3 The specific animal is classified according to the standard animal nomenclature.
2. Identify and name the components and the externally visible divisions or parts of an animal and identify gross abnormalities therein.

Assessment criteria:

- 2.1 Animal main body parts are identified, named and understood.

- (Range: Main body parts include but are not limited to external sensory organs and gross body parts such as head thorax, abdomen, back, as relevant to the context of application).
- 2.2 Animal appendages are identified, named and understood.
(Range: Appendages include but are not limited to legs, fins, horns, udders, antennae, feet, hooves, claws, wings, beaks, as relevant to the context of application).
- 2.3 Gross abnormalities are identified according to criteria.
(Range: Abnormalities include but are not limited to breaks, deformities, scarring and damage).

- 3.
4. Understand the basic concepts of further anatomical systems within animals according to criteria.

Range: This description includes but is not limited to fish, birds, mammals, insects, crustaceans, reptiles, molluscs and amphibians, as relevant to the context of application.

Further anatomical systems include but are not limited to: external systems and covering, skeleton, musculature, digestive system and reproductive system.

Assessment criteria:

- 3.1 Anatomical systems are named and their structure described.
- 3.2 The purpose of anatomical systems is briefly described according to criteria.
- 3.3 Portions of anatomical systems visible externally are identified and indicated.
4. Identify and describe the morphological attributes of animals by which they are classified.

Range: The morphological attributes of animals include but are not limited to the length, shape, size, angulations, thickness and other attributes of specific body parts of the animal.

Assessment criteria:

- 4.1 Anatomical and body parts used for morphological evaluation are identified and shown.
- 4.2 Morphological attributes of various anatomical parts are described.
- 4.3 Animals are evaluated and classified according to morphological attributes.
5. Identify and describe the animal's life cycle.

Assessment criteria

- 5.1 The various steps in the life cycle of the animal are identified.
(Range: this includes but is not limited to animals with complete life cycles or incomplete life cycles according to class).
- 5.2 The various attributes of the various steps in the life cycles are identified.
- 5.3 The reasons for the various steps in the life cycle and the vulnerability of the animal where appropriate are identified.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to all outcomes.
2. **Teamwork:** Relates to all outcomes.
3. **Self-Management:** Relates to all outcomes.
4. **Interpreting Information:** Relates to outcome 2.
5. **Communication:** Relates to all outcomes.
6. **Use Science and Technology:** Relates to all outcomes.
7. **The world as a set of related systems:** Relates to all outcomes.
8. **Self-development:** Relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Applicable biological and morphological names and terminology.
2. Applicable external characteristics and properties of animals and their components.
3. Various applicable sensory cues regarding gross abnormalities in animals.
4. The purpose of the anatomical, morphological and physiological evaluation of animals.
5. Actions to be taken in the event of various cues and symptoms being perceived during the evaluation of external anatomical, morphological and physiological parts of animals.
6. The appropriate codes of practice and procedures relating to the handling and evaluation of animals and the implications of contraventions.
7. The effects of the various gross abnormalities and their timeous perception on the well being of the animal.
8. Classification of animals based on their anatomy and morphology

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.4.2**ANIMAL PRODUCTION**

TITLE	:	RECOGNISE BASIC BREEDING BEHAVIOUR OF FARM ANIMALS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	6
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to observe and report on basic breeding behaviour of farm animals.

Learners will gain specific knowledge and skills in animal breeding and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Anatomy and Physiology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Recognise normal mating behaviour in breeding animals.
 2. Observe abnormal mating behaviour in breeding animals.
 3. Identify successful mating amongst breeding animals.
 4. Observe breeding animals behaviour post breeding.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Recognise normal mating behaviour in breeding animals.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of application.

Assessment criteria:

- 1.1 Breeding animals are approached in the correct way according to specific guidelines.
- 1.2 Mating behaviour is observed in a group of female breeding animals.
- 1.3 Mating behaviour is observed in male breeding animals.
- 1.4 The observations are reported to the supervisor.

2. Observe abnormal mating behaviour in breeding animals.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of application.

Assessment criteria:

- 2.1 A group of female breeding animals is observed for abnormal mating behaviour.
- 2.2 Male breeding animals are observed for abnormal mating behaviour.
- 2.3 The observations are reported to the supervisor.

3. Identify successful mating amongst breeding animals.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of application.

Assessment criteria:

- 3.1 Breeding animals are observed for successful mating behaviour
 - 3.2 Breeding animals that have been mated successfully are identified.
 - 3.3 The observations are reported to the supervisor.
4. Observe breeding animals for post breeding behaviour.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of application.

Assessment criteria:

- 4.1 Breeding animals are approached in the correct way according to specific guidelines.
- 4.2 A group of female breeding animals is observed for post breeding behaviour.
- 4.3 Male breeding animals are observed for post breeding behaviour.
- 4.4 The observations are reported to the supervisor.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** Relates to all outcomes.
2. **Teamwork:** Relates to all outcomes.
3. **Self-organisation and management:** Relates to all outcomes.
4. **Information evaluation:** Relates to all outcomes.
5. **Communication:** Relates to all outcomes.
6. **Use science and technology:** Relates to all outcomes.
7. **Inter-relatedness of systems:** Relates to all outcomes.
8. **Self-development:** Relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic anatomy of the reproductive organs of male and female animals.
2. Basic observations of breeding behaviour in farm animals.
3. Basic communication skills to report observations.
4. Basic farm practices (fencing, maintenance of water troughs, availability of grazing).
5. Basic farm procedures (reporting channels).
6. Basic numeracy and literacy.
7. Movement and handling of breeding animals.
8. Purpose of equipping a person to be able to observe and report on breeding behaviour.
9. Correct on farm procedures are followed.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.4.3

ANIMAL PRODUCTION

TITLE	:	RECOGNISE DEFENSIVE BEHAVIOR IN ANIMALS
SAQA LOGO	:	
UNIT STANDARD NO	:	PAETA
UNIT STANDARD LEVEL	:	1
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to identify symptoms of defensive behaviour in animals and describe protocol and equipment as instructed within an animal production environment implementing sustainable and economically viable production principles.

In addition they will be well positioned to extend their learning and practice into other areas of animal husbandry and management to the benefit of the industry.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The involvement in production will also have a direct impact on the improvement of agricultural productivity of the sector.

(Note that defensive behaviour by animals is normally interpreted as hostile, offensive and aggressive by man. For the purpose of these unit standards, the word defensive will be used throughout to describe behaviour that could be harmful to other animals and humans).

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand and describe behaviour of specific animals.
 2. Identify symptoms of defensive behaviour.
 3. Describe management protocol for relevant animals to minimise defensive behaviour.
 4. List relevant equipment required managing relevant animals.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand and describe behaviour of specific animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, fish, crustaceans, and molluscs as relevant to the context of operation.

Assessment criteria:

- 1.1 The specific animal under review with special attention to behaviour during various stages of its lifecycle is explained.
- 1.2 The animal's anatomical features that are involved in its behaviour are described.
(Range: such anatomical features include but are not limited to the animal's horns, stings, fangs or teeth, pinchers, shells, hooves).
- 1.3 The way in which the animal makes use of the specific anatomical features as a defensive mechanism is described.
- 1.4 The way in which animals are stimulated to defend themselves is described.

2. Identify symptoms of defensive behaviour.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, fish, crustaceans, and molluscs as relevant to the context of operation.

Assessment criteria:

- 2.1 The individual is able to identify and illustrate the symptoms of defensive behaviour.
(Range: Defensive behaviour includes but is not limited to butting, biting, stinging, kicking, charging, fainting, hissing, closing, clamping, pinching)
- 2.2 The causes of defensive behaviour are identified, illustrated and listed accordingly.
- 2.3 Various forms and levels of intensity of defensive behaviour are listed.
- 2.4 The parameters related to the various levels of intensity are identified and described.

3. Describe management protocol for relevant animals to minimise defensive behaviour.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, fish, crustaceans, and molluscs as relevant to the context of operation.

Assessment criteria:

- 3.1 How to reduce the risk of defensive behaviour from manifesting itself is described.
- 3.2 The possible causes for defensive behaviour and relevant procedures how to reduce these are described and listed.
- 3.3 Animal handling procedures under supervision with specific reference to those preventing animal defensiveness are demonstrated.

4. List relevant equipment required to manage relevant animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, fish, crustaceans, and molluscs, as relevant to the context of operation.

Assessment criteria:

- 4.1 Relevant equipment required to manage specific animals to avoid potentially defensive behaviour or to manage defensiveness in animals is listed.
(Range: equipment include but are not limited to stunners, smokers, coverings, rope, fences and gates, pressure passages and clamps, nets and sails and protective clothing such as veils, gloves, boots, hats, overalls and harnesses, goggles).
- 4.2 The components of all relevant animal management protective equipment are described.
- 4.3 The use of relevant animal management protective equipment under supervision is described and demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 4.
2. **Teamwork:** Relates to outcome 3.

3. **Self-Organisation and Management:** Relates to outcomes 1 to 4.
4. **Communication:** Relates to outcomes 1 to 4.
5. **Personal Development:** Relates to outcomes 1 to 4.
6. **Interpretation of information:** Relates to outcomes 1 to 4.
7. **The world as a set:** Relates to outcomes 1 to 4.
8. **Science and technology:** Relates to outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic comprehension of the specific symptoms of defensive behaviour.
2. The causes of defensive behaviour.
3. The equipment required handling defensive behaviour.
4. Sensory observation of defensive behaviour.
5. Observation of animal behaviour over time.
6. Evaluation of the potential risks involved when working with the relevant animals.
7. Behaviour classification.
8. The purpose of learning about defensive behaviour.
9. The purpose of learning about animal defensiveness.

SUPPLEMENTARY INFORMATION

NOTES

END-



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**Level 1.4.4 ANIMAL PRODUCTION
SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:**

Assess the influence of the environment on sustainable livestock production

SAQA US ID	UNIT STANDARD TITLE		
13356	Assess the influence of the environment on sustainable livestock production		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Primary Agriculture	ABET Level 4		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Agriculture and Nature Conservation		Primary Agriculture	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
AGR-PAG-0-SGB PA	Regular	Level 1	4
REGISTRATION START DATE	REGISTRATION END DATE	REGISTRATION NUMBER	SAQA DECISION NUMBER
2000-12-06	2003-12-06	13356	SAQA 1033/00

PURPOSE OF THE UNIT STANDARD

A candidate credited with this competence will be capable to: identifying and describing environmental factors influencing the veld; assessing the influence of veld composition on livestock feeding preferences and habits; analysing and describe environmental factors that influence livestock selection; identifying and describe supplementary feeding for livestock production; identifying and describe harmful and beneficial organisms that influence livestock production; and identifying and assessing the effects of agricultural management practices on the sustainability of the environment.

LEARNING ASSUMED TO BE IN PLACE

Open

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Identify and describe environmental factors influencing the veld.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Ecological factors that influence the veld are identified.

ASSESSMENT CRITERION RANGE

includes, among others, climate, soil and topography

ASSESSMENT CRITERION 2

2. The significance of ecological factors that influence the veld are explained.

ASSESSMENT CRITERION 3

3. The three major vegetation types are identified.

ASSESSMENT CRITERION RANGE

sweetveld, sourveld and mixed veld

ASSESSMENT CRITERION 4

4. The three major vegetation types are explained.

SPECIFIC OUTCOME 2

Assess and modify the influence of veld composition on livestock feeding preferences and habits.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The concept of veld composition is investigated.

ASSESSMENT CRITERION RANGE

including the concept of pioneer and climax species

ASSESSMENT CRITERION 2

2. Veld composition as a factor in veld management is explained.

ASSESSMENT CRITERION 3

3. Palatable and non-palatable species of plants are distinguished.

ASSESSMENT CRITERION 4

4. Browsing and grazing habits are distinguished.

ASSESSMENT CRITERION 5

5. Livestock preferences and needs are distinguished.

SPECIFIC OUTCOME 3

Analyse and describe environmental factors that influence livestock selection.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The significance of environment as a factor influencing livestock selection is investigated and explained.

ASSESSMENT CRITERION 2

2. Livestock breeds and their requirements (characteristics) are analysed.

ASSESSMENT CRITERION 3

3. The regionalisation of the livestock industry as a factor influencing livestock selection, is investigated and analysed.

ASSESSMENT CRITERION RANGE

National, provincial and local.

ASSESSMENT CRITERION 4

4. The management of existing environmental factors is discussed.

SPECIFIC OUTCOME 4

Investigate supplementary feeding options for livestock production.

ASSESSMENT CRITERIA**ASSESSMENT CRITERION 1**

1. The different ways of supplementary feeding are identified.

ASSESSMENT CRITERION RANGE

green/dry fodder and concentrates

ASSESSMENT CRITERION 2

2. Ways of supplementary feeding appropriate to the learners` context are distinguished.

ASSESSMENT CRITERION 3

3. The different types of cultivated pastures are investigated.

ASSESSMENT CRITERION 4

4. Different grazing control practices on cultivated pastures are distinguished.

ASSESSMENT CRITERION 5

5. Licks as dietary supplements are identified.

SPECIFIC OUTCOME 5

Identify and describe beneficial and harmful organisms that influence livestock production.

OUTCOME RANGE

emphasis on locally important parasites and diseases

ASSESSMENT CRITERIA**ASSESSMENT CRITERION 1**

1. Beneficial organisms are identified and described.

ASSESSMENT CRITERION 2

2. The effects of internal and external parasites in livestock production are identified and described.

ASSESSMENT CRITERION 3

3. Noxious plants that hinder livestock production are identified and described.

ASSESSMENT CRITERION RANGE

poisonous plants and those which influence the quality of livestock products

ASSESSMENT CRITERION 4

4. Control options for internal and external parasites are discussed.

ASSESSMENT CRITERION 5

5. Major livestock diseases are identified and described.

ASSESSMENT CRITERION 6

6. Control and treatment interventions and programmes for livestock disease are discussed.

ASSESSMENT CRITERION RANGE

Including notifiable diseases

SPECIFIC OUTCOME 6

Conduct an investigation into the effects of agricultural management practices on the sustainability

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Principles of veld management are explained.

ASSESSMENT CRITERION 2

2. The concept of sustainability is explained.

ASSESSMENT CRITERION 3

3. Existing livestock production practices are identified.

ASSESSMENT CRITERION 4

4. Livestock production practices that enhance agricultural sustainability are identified and explained.

ASSESSMENT CRITERION 5

5. Livestock production practices that have a negative impact on the sustainability of the environment are identified and explained.

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;

UNIT STANDARD CCFO WORKING

Work effectively with others as a member of a team, group organisation and community;

UNIT STANDARD CCFO ORGANIZING

Organise and manage oneself and one's activities responsibly and effectively;

UNIT STANDARD CCFO COLLECTING

Collect, analyse, organise and critically evaluate information;

UNIT STANDARD CCFO COMMUNICATING

Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation;

UNIT STANDARD CCFO DEMONSTRATING

Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

UNIT STANDARD NOTES

Specific outcome 5 in Agri/003 can be used as the basis for developing a livestock health management programme.

Developmental Outcomes:

This unit standard supports the following developmental outcomes:

1. Reflecting on and exploring a variety of strategies to learn more effectively;
2. Participating as responsible citizens in the life of local, national and global communities;
3. Being culturally and aesthetically sensitive across a range of social contexts;
4. Exploring education and career opportunities; and
5. Developing entrepreneurial opportunities.

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LEVEL 1.4.5**ANIMAL PRODUCTION****TITLE****APPLY STANDARD ANIMAL FEEDING PROCEDURES**

SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	6
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to follow correct on-farm animal feeding practices. In addition they will be well positioned to extend their learning and practice into other areas of animal feeding and nutrition. This will ensure healthy and well-fed animals, optimising production. This unit standard concentrates specifically on Nutrition Management.

Learners will gain specific knowledge and skills in animal feeding and nutrition and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

Basic functional literacy.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Follow correct on-farm procedures to maintain feed quality.
 2. Apply feed level control and record keeping.
 3. Select appropriate feed type and quantity as per instruction.
 4. Observe and report on feed quality before allowing animals access to feed.
 5. Apply correct feeding under supervision.
 6. Identify and report abnormal feeding behaviour in animals.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Follow correct on-farm procedures to maintain feed quality.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds.

Assessment criteria:

- 1.1 An understanding of the correct condition and quality of feed is explained.
- 1.2 An understanding of the first-in first-out principle is explained.
- 1.3 The importance of correct procedures is explained.

2. Apply feed level control and record keeping.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds.

Assessment criteria:

- 2.1 The ability to report on feed levels is demonstrated.
- 2.2 The ability to identify irregularities is demonstrated.
- 2.3 The ability to correctly report on irregularities is demonstrated.

3. Selection of appropriate feed type and quantity as per instruction.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds.

Assessment criteria:

- 3.1 Feed type is identified and selected correctly according to instructions.
- 3.2 Sufficient feed is selected according to instructions.
- 3.3 Feed levels are observed and reported correctly.
- 4.
- 5.
6. Observe and report on feed quality before allowing animals access to the feed.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds.

Assessment criteria:

- 4.1 The ability to identify spoilage in feed is demonstrated.
- 4.2 The ability to identify the presence of contaminants in feed is demonstrated.
- 4.3 The ability to report observations is demonstrated.

7. Apply correct feeding practices under supervision.

Range: Feeding practices include but are not limited to those appropriate to extensive (natural vegetation or animals), semi-intensive (planted pastures, concentrates and supplements and the feeding of retained animals) or intensive systems (complete feed).

Assessment criteria:

- 5.1 Water supplies are maintained.
- 5.2 Feed supplies are maintained.
- 5.3 Feeding equipment is maintained (Troughs, dispensers, founts).

8. Identify and report abnormal feeding behaviour in animals.

Range: Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects

Abnormal feeding behaviour in animals include but are not limited to low intake, feed selection, feed rejection, vomiting, weight-loss (or lack of weight gain), overfeeding.

Assessment criteria:

- a. Any abnormal deviation is observed
- b. Any abnormal deviation is reported.
- c. Understand various symptoms of abnormal feeding.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** Relates to all specific outcomes.
2. **Teamwork:** Relates to all specific outcomes.
3. **Self-management:** Relates to all specific outcomes.
4. **Information evaluation:** Relates to all specific outcomes.
5. **Communication:** Relates to all specific outcomes.
6. **Use science and technology:** Relates to all specific outcomes.
7. **Inter relatedness of systems:** Relates to all specific outcomes.
8. **Self-development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The basic responsibility for given tasks.
2. Develop an understanding of feed quality.
3. Develop an understanding of normal feeding behaviour.
4. Develop an understanding of abnormal feeding behaviour.
5. Develop an understanding of maintaining feed quality and hygiene.
6. Identify basic appropriate feeds.
7. Follow feeding procedure.
8. Develop a two-way relationship with supervisor in regard to responsibilities and reporting (Communication Skills).
9. Understanding the purpose of the outcomes of this unit standard.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.4.6**ANIMAL PRODUCTION**

TITLE	:	OBSERVE AND HANDLE ANIMALS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to observe animals regarding their health status and be able to handle them. In addition they will be well positioned to extend their learning and practice into other areas of animal production, ensuring healthy animals and humane treatment.

Learners will gain specific knowledge and skills in animal health and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Basic external animal anatomy and morphology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Observe, record and report behaviour and physical attributes.
 2. Evaluate animal behaviour and attributes regarding abnormalities.
 3. Collect and move animals to a holding facility.
 4. Restrain animals in a holding facility.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Observe, record and report behaviour and physical attributes.

Range: Animal behaviour includes but is not limited to walking, running, feeding, mating, drinking, and sleeping.

Animals include, but are not limited to fish, birds, mammals, insects, crustaceans, reptiles, molluscs and amphibians as relevant to the context of application.

Assessment criteria:

- 1.1 The ability to observe and evaluate animal behaviour is demonstrated.
- 1.2 The ability to observe and evaluate animal physical attributes is demonstrated.
- 1.3 The ability to record and report on animal behaviour and physical attributes is demonstrated.

2. Evaluate animal behaviour and attributes regarding abnormalities

Range: Abnormal behaviour includes but is not necessary limited to lethargy, aggression, lack of appetite or gross signs of disease and abnormalities.

Assessment criteria:

- 2.1 Individual animal abnormalities are observed.
- 2.2 Individual animals showing abnormal behaviour are identified.
- 2.3 The ability to report to superior is demonstrated.

3. Move animals to and into a holding facility.

Range: Moving animals includes but is not limited to collection and moving from holding pens, tanks, houses, etc. as relevant to the context of application.

Assessment criteria:

- 3.1 The ability to move animals to a collective point, at gate or other opening is demonstrated.
- 3.2 The ability to move animals in a controlled manner is demonstrated.
- 3.3 Animals are prepared for moving where appropriate.
- 3.4 Attending to the needs of the animals before, after and during the moving is demonstrated.

4. Restrain animals in a restraint facility

Range: Restraint facilities are not limited to holding tanks, crushes, hives, houses, paddocks, etc. as relevant to the context of application.

Assessment criteria:

- 4.1 The method of checking a restraint facility before being used is demonstrated.
- 4.2 The steps required to restrain a specific animal is demonstrated.
- 4.3 The ability to restrain groups of animals is demonstrated.
(Range: groups of animals include but are not limited to schools, troops, herds, swarms, colonies, gaggles, flocks, etc.).
- 4.2 The ability to restrain animals in a controlled manner without harming or stressing the animal is demonstrated with individual animals as well as with groups of animals.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to outcome 1.
2. **Teamwork**: relates to outcomes 3 and 4.
3. **Self Management** relates to outcome 1, 2 and 3.
4. **Information evaluation**: relates to outcome 1 and 3.
5. **Communication** relates to outcome 1, 2, and 3.
6. **Use science and technology**: relates to outcomes 1, 2.
7. **Inter relatedness of systems**: relates to all outcomes.
8. **Self-development**: relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and functions of the various animals
2. Diseases and abnormalities
3. Symptoms relating to animal health
4. Rules and codes of conduct relating to the movement, handling and observation of animals.

5. The ability to handle animals confidently, safely and humanely
6. Recording procedure
7. Simple report writing skills
8. Animal retention infrastructure control and maintenance skills

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.4.7**ANIMAL PRODUCTION**

TITLE	:	HARVEST ANIMAL PRODUCTS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to understand and identify the readiness of animal products for harvesting and explaining the procedure for harvesting the specific products. In addition they will be well positioned to extend their learning and practice into other areas of animal production and agriculture ensuring profitability of agricultural enterprises.

Learners will gain specific knowledge and skills in harvesting of animal products and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand and describe the origin and purpose of animal products for harvesting and use.
 2. Understand and describe the status of the animal products to be harvested.
 3. Understand and describe the names, identification and potential of various animal products to be harvested.
 4. Describe and demonstrate correct procedures for the harvesting of animal products.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand and describe the origin of animal products for harvesting and use.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding, as relevant to the context of application.

Assessment criteria:

- 1.1 The origin and purpose of animal products used by man in the animal before harvesting are identified and illustrated.
 - 1.2 The animal products used by man are described and understood.
 - 1.3 The use by man of the animal products to be harvested is described and understood.
2. Understand and describe the indicators and their status used to describe the readiness of the animal products for harvesting.

Range: Sensory indicators relating to the readiness of animal products include but are not limited to measurements against standards, market demand, indicators in parts of the animal or its products or in the entire animal of chemistry, strength, size, colour, smell, physical product attributes, production of sound or by using time or the presence or position of the animal's products or the animal itself or behaviour as an indicator as relevant to the context of application.

Assessment criteria:

- 2.1 The indicators used to identify the readiness of the products to be harvested in an animal are described and understood.

- 2.2 The various levels of the status of the indicators of animal product readiness are described and understood.
- 2.3 The effect of the indicator on the product is described and understood.

- 3. Understand and describe the names, identification and potential of various animal products to be harvested.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 3.1 The effect of harvesting the product on the animal is described and understood.

(Range: the effects on the animal include but are not limited to nothing whatsoever, relief, death (slaughter or use of whole animal), and stress).

- 3.2 The specific animal products to be harvested and their parameters are described and understood.
- 3.3 The potential of animal products that can be harvested are described and understood.

- 4. Describe and demonstrate correct procedures for the harvesting of specific animal products.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 4.1 The various procedures used for harvesting specific animal products are described and understood.

(Range: the various procedures for harvesting animal products include but are not limited to extraction, milking, plucking, collecting, cutting, shearing, removing, stripping, picking, preparing places where products may be deposited by the animal, scraping, application of heat or other physical intervention, using the whole animal or slaughter) as relevant to the context of application.

- 4.2 The reasons for performing the specific procedures to harvest animal products are described and understood.

- 4.3 The potential dangers to the animal and/or to the harvester of the animal products are described and understood.
- 4.4 The preparatory, emergency, closing and procedural safety steps to be taken during the harvesting of animal products are described and understood.
- 4.5 The equipment required to perform the procedures of the harvesting of animal products including safety equipment is described and understood.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 2 to 4.
2. **Teamwork:** Relates to outcome 4.
3. **Self-Organisation and Management:** Relates to outcomes 1 to 4.
4. **Communication:** Relates to outcomes 1 to 4.
5. **Personal Development:** Relates to outcomes 1 to 4.
6. **Interpretation of information:** 1 Relates to outcomes to 4.
7. **The world as a set:** Relates to outcomes 1 to 4.
8. **Science and technology:** Relates to outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic comprehension and understanding of the specific animals producing animal products to be harvested.
2. Origin of animal products.
3. Use by animals and man of animal products.
4. Sensory observation and evaluation of animals to evaluate their readiness of their products for harvesting.
5. Observation of animal production cycles over time.
6. Evaluation of the potential of animal production.
7. Animal classification, nomenclature and common name terms.
8. The purpose of learning about animal production and products.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.5.1**PLANT PRODUCTION**

TITLE:	:	DEMONSTRATE A BASIC UNDERSTANDING OF THE STRUCTURE AND FUNCTION OF A PLANT IN RELATION TO ITS ENVIRONMENT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Anatomy and Physiology
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner will be able to demonstrate an elementary understanding of the parts of a plant and their basic function.

Learners will gain specific knowledge and skills in plant anatomy and physiology and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Locate and identify the different parts of a plant.
 2. Describe the role of the different parts of the plant.
 3. Describe how the plant relates to the environment.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Locate and identify the different parts of a plant.

Range: Plant parts may include but are not limited to roots, stems, leaves, flowers, fruits and seeds.

Assessment criteria:

- 1.1 The basic structure of a plant is illustrated.
- 1.2 The roots of a plant are identified and described.
- 1.3 The stem of a plant is identified.
- 1.4 The leaves on a plant and their appearance are described and discussed.
- 1.5 The position of the flowers is located and described.
- 1.6 The different types of flowers are discussed.
- 1.7 The different fruit and seeds are described.

2. Describe the role of the different parts of the plant.

Range: The role refers to the function of the parts of the plant but are not limited to roots, stems, leaves, flowers, fruits and seeds.

Assessment criteria:

- 2.1 The role of the roots in relation to the plant and its environment is described.
- 2.2 The role of the stem and its function is described.
- 2.3 The basic function of the leaves in relation to the plant is explained.
- 2.4 The role of the flowers is described.
- 2.5 The function of the fruit and seeds is described.
- 2.6 The pollination of flowers with reference to self- and cross-pollination is discussed.

3. Describe how the plant relates to the environment.

Range: The environment refers to but is not limited to soil, water, sunlight and air. the relationship refers to but is not limited to roots and soil for water-uptake, sunlight for green leaves and air for carbon dioxide and oxygen exchange.

Assessment criteria:

- 3.1 The root in relation to its environment is described.
- 3.2 How the root functions in the uptake of water and nutrients from the growing media is described very basically.
(Range: Growing medium refers, but is not limited to soil, hydroponics, etc.)

- 3.3 The importance of sunlight, water and nutrients for plant growth, fruit and seed production is described.
- 3.4 The difference between male and female flowers and how this influences fruit production is described.
- 3.5 The reproduction cycle of a plant with reference to different types of plants (Range includes but is not limited to monoecious (single sex plants) or dioecious (both sexes on plant) plants) is explained.
- 3.6 Pollination with reference to environmental factors is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 2 and 3.
2. **Self-Management** relates to specific outcomes 1 to 3.
3. **Interpreting Information** relates to specific outcomes 2 and 3.
4. **Communication** relates to specific outcomes 1 to 3.
5. **Science and Technology** relates to specific outcomes 1 to 3.
6. **Self-Development** relates to specific outcomes 1 to 3.
7. **Teamwork:** relates to all specific outcomes.
8. **Inter relatedness:** relates to specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 The names and functions of the different parts of a plant and its composition.
- 2 The characteristics and properties of the life cycle of a plant.
- 3 Sight and touch is utilised to identify the parts and functions of the different plants.
- 4 Purpose of identifying parts and functions of plants in different environments.
- 5 The procedures required when producing plants in different planting media.
- 6 The laws of nature are understood regarding plants and their environment.
- 7 The relationship between plants and their different environments.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.5.2**PLANT PRODUCTION****TITLE : PLANT THE CROP UNDER SUPERVISION**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 1

CREDIT : 4

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Establishment

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to plant a range of crops by placing and spacing the planting material correctly. This is an entry-level Unit Standard that forms prior learning for learning in the areas of plant manipulation and plant propagation.

Learners will gain specific knowledge and skills in plant establishment and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Select, use and care for hand tools and basic equipment and infrastructure.
NQF 1: Demonstrate a basic understanding of the structure and function of a plant in relation to its environment.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Use and care for the tools and equipment in the planting of a specific crop.
2. Handle planting material correctly for the successful establishment of a specific crop.
3. Describe the basic effects of the environment on specific crops.
4. Plant planting stock at correct spacing between rows, between individual plants, and at the correct depth for specific plant species.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

1. Use and care for the tools and equipment in the planting of a specific crop.

Range: Planting methods include, but are not limited to planting by hand, planting with use of machines, etc. Tools include, but are not limited to spades, forks, and planting line.

Assessment criteria:

- 1.1 Tools are used correctly in order to plant a specific crop.
- 1.2 Equipment is used correctly in order to space plants according to the requirements of a specific species.
- 1.3 Tools are cleaned and returned to storage in good order.

2. Handle planting material correctly for the successful establishment of a specific crop.

Range: Planting material may include, but is not restricted to, long term crops and cash crops. The handling of plants includes, but not limited to, the safe storage of plants before planting, the prevention of damage to plant material, ensuring that the planting material has sufficient moisture, and that sanitary precautions are adhered to. Planting methods include, but are not restricted to planting by hand and planting with use of hand-held tools.

Assessment criteria:

- 2.1 Planting areas are prepared to suit the selected planting material.
- 2.2 Plant material that is on hand for planting is kept moist and sheltered.
- 2.3 Newly planted material is provided with sufficient water shortly after planting.

- 2.4 Newly planted material that will not survive is removed and replaced with new material.
- 2.5 Diseased plants are removed from the planting area to prevent contact with healthy plants.
- 2.6 Basic hygiene standards are maintained, such as cleaning tools to prevent cross-contamination.
3. Describe the basic effects of the environment on specific crops.

Range: Environmental effects include, but are not limited to temperature, wind, humidity, rain, soil, etc.

Assessment criteria:

- 3.1 The basic effect of temperature and humidity on seedlings is explained.
 - 3.2 Plants suffering from root shock are identified and the cause explained.
 - 3.3 The best time of the day for transplanting is identified.
 - 3.4 The effect of heat on transplanted seedlings is explained.
-
4. Plant planting stock at correct spacing between rows, between individual plants, and at the correct depth for specific plant species.

Range: Spacing, depth and distance include, but are not limited to the distance indicated on plant line, measurements as prescribed, etc.

Assessment criteria:

- 4.1 Seedlings are planted correctly, as per prescribed methods, under close supervision.
- 4.2 Seedlings are placed in holes that are the correct depth for specific species.
- 4.3 Seedlings are planted at the correct distance from each other, as per instructions.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving** relates to specific outcomes 2, 3 and 4.
2. **Teamwork** relates to specific outcomes 2, 3 and 4.

3. **Self-Management** relates to specific outcomes 1 to 4.
4. **Interpreting Information** relates to specific outcomes 2, 3 and 4.
5. **Communication** relates to specific outcomes 2, 3 and 4.
6. **Use Science and Technology** relates to specific outcomes 1 to 4.
7. **Self-development** relates to specific outcomes 1 to 4.
8. **Inter relatedness:** relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of tools and materials.
2. The principles of planting a crop correctly.
3. The use of sight and touch to achieve the planting of plants.
4. Safe handling procedures of tools and material.
5. Maintaining hygienic procedures of tools and material as to prevent spreading of diseases.
6. Various establishment principles to optimise production (appropriate to level).
7. Plant physiology and anatomy (appropriate to level).
8. Various procedures applicable when planting e.g. preparation of plants for planting, etc.
9. The importance of plant roots not drying out and irrigating after planting.
10. The reason for specific planting depth.
11. Compliance with the Occupational Health and Safety Act.

SUPPLEMENTARY INFORMATION

NOTES

END



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**SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:**

Assess the influence of the environment on sustainable livestock production

SAQA US ID	UNIT STANDARD TITLE		
13356	Assess the influence of the environment on sustainable livestock production		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Primary Agriculture	ABET Level 4		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Agriculture and Nature Conservation		Primary Agriculture	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NOF LEVEL	CREDITS
AGR-PAG-0-SGB PA	Regular	Level 1	4
REGISTRATION START DATE	REGISTRATION END DATE	REGISTRATION NUMBER	SAQA DECISION NUMBER
2000-12-06	2003-12-06	13356	SAQA 1033/00

PURPOSE OF THE UNIT STANDARD

A candidate credited with this competence will be capable to: identifying and describing environmental factors influencing the veld; assessing the influence of veld composition on livestock feeding preferences and habits; analysing and describe environmental factors that influence livestock selection; identifying and describe supplementary feeding for livestock production; identifying and describe harmful and beneficial organisms that influence livestock production; and identifying and assessing the effects of agricultural management practices on the sustainability of the environment.

LEARNING ASSUMED TO BE IN PLACE

Open

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Identify and describe environmental factors influencing the veld.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Ecological factors that influence the veld are identified.

ASSESSMENT CRITERION RANGE

includes, among others, climate, soil and topography

ASSESSMENT CRITERION 2

2. The significance of ecological factors that influence the veld are explained.

ASSESSMENT CRITERION 3

3. The three major vegetation types are identified.

ASSESSMENT CRITERION RANGE

sweetveld, sourveld and mixed veld

ASSESSMENT CRITERION 4

4. The three major vegetation types are explained.

SPECIFIC OUTCOME 2

Assess and modify the influence of veld composition on livestock feeding preferences and habits.

ASSESSMENT CRITERIA**ASSESSMENT CRITERION 1**

1. The concept of veld composition is investigated.

ASSESSMENT CRITERION RANGE

including the concept of pioneer and climax species

ASSESSMENT CRITERION 2

2. Veld composition as a factor in veld management is explained.

ASSESSMENT CRITERION 3

3. Palatable and non-palatable species of plants are distinguished.

ASSESSMENT CRITERION 4

4. Browsing and grazing habits are distinguished.

ASSESSMENT CRITERION 5

5. Livestock preferences and needs are distinguished.

SPECIFIC OUTCOME 3

Analyse and describe environmental factors that influence livestock selection.

ASSESSMENT CRITERIA**ASSESSMENT CRITERION 1**

1. The significance of environment as a factor influencing livestock selection is investigated and explained.

ASSESSMENT CRITERION 2

2. Livestock breeds and their requirements (characteristics) are analysed.

ASSESSMENT CRITERION 3

3. The regionalisation of the livestock industry as a factor influencing livestock selection, is investigated and analysed.

ASSESSMENT CRITERION RANGE

National, provincial and local.

ASSESSMENT CRITERION 4

4. The management of existing environmental factors is discussed.

SPECIFIC OUTCOME 4

Investigate supplementary feeding options for livestock production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The different ways of supplementary feeding are identified.

ASSESSMENT CRITERION RANGE

green/dry fodder and concentrates

ASSESSMENT CRITERION 2

2. Ways of supplementary feeding appropriate to the learners` context are distinguished.

ASSESSMENT CRITERION 3

3. The different types of cultivated pastures are investigated.

ASSESSMENT CRITERION 4

4. Different grazing control practices on cultivated pastures are distinguished.

ASSESSMENT CRITERION 5

5. Licks as dietary supplements are identified.

SPECIFIC OUTCOME 5

Identify and describe beneficial and harmful organisms that influence livestock production.

OUTCOME RANGE

emphasis on locally important parasites and diseases

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Beneficial organisms are identified and described.

ASSESSMENT CRITERION 2

2. The effects of internal and external parasites in livestock production are identified and described.

ASSESSMENT CRITERION 3

3. Noxious plants that hinder livestock production are identified and described.

ASSESSMENT CRITERION RANGE

poisonous plants and those which influence the quality of livestock products

ASSESSMENT CRITERION 4

4. Control options for internal and external parasites are discussed.

ASSESSMENT CRITERION 5

5. Major livestock diseases are identified and described.

ASSESSMENT CRITERION 6

6. Control and treatment interventions and programmes for livestock disease are discussed.

ASSESSMENT CRITERION RANGE

Including notifiable diseases

SPECIFIC OUTCOME 6

Conduct an investigation into the effects of agricultural management practices on the sustainability

ASSESSMENT CRITERIA**ASSESSMENT CRITERION 1**

1. Principles of veld management are explained.

ASSESSMENT CRITERION 2

2. The concept of sustainability is explained.

ASSESSMENT CRITERION 3

3. Existing livestock production practices are identified.

ASSESSMENT CRITERION 4

4. Livestock production practices that enhance agricultural sustainability are identified and explained.

ASSESSMENT CRITERION 5

5. Livestock production practices that have a negative impact on the sustainability of the environment are identified and explained.

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS**Critical Cross-field Outcomes (CCFO):****UNIT STANDARD CCFO IDENTIFYING**

Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;

UNIT STANDARD CCFO WORKING

Work effectively with others as a member of a team, group organisation and community;

UNIT STANDARD CCFO ORGANIZING

Organise and manage oneself and one's activities responsibly and effectively;

UNIT STANDARD CCFO COLLECTING

Collect, analyse, organise and critically evaluate information;

UNIT STANDARD CCFO COMMUNICATING

Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation;

UNIT STANDARD CCFO DEMONSTRATING

Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

UNIT STANDARD NOTES

Specific outcome 5 in Agri/003 can be used as the basis for developing a livestock health management programme.

Developmental Outcomes:

This unit standard supports the following developmental outcomes:

1. Reflecting on and exploring a variety of strategies to learn more effectively;
2. Participating as responsible citizens in the life of local, national and global communities;
3. Being culturally and aesthetically sensitive across a range of social contexts;
4. Exploring education and career opportunities; and
5. Developing entrepreneurial opportunities.

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**LEVEL 1.5.3 PLANT PRODUCTION
SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:**

Demonstrate an understanding of the physical and biological environment and its relationship to sustainable crop production

SAQA US ID	UNIT STANDARD TITLE		
13355	Demonstrate an understanding of the physical and biological environment and its relationship to sustainable crop production		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Primary Agriculture	ABET Level 4		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Agriculture and Nature Conservation		Primary Agriculture	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
AGR-PAG-0-SGB PA	Regular	Level 1	4
REGISTRATION START DATE	REGISTRATION END DATE	REGISTRATION NUMBER	SAQA DECISION NUMBER
2000-12-06	2003-12-06	13355	SAQA 1033/00

PURPOSE OF THE UNIT STANDARD

A candidate credited with this unit standard will be capable of: identifying and describing the nature of soil; soil as a factor in agricultural production; climatic factors influencing crop production and their practical implications; the importance of water as a factor in agricultural production; the influence of topography on agricultural production; biological organisms as a factor influencing crop production and assessing the effects of crop production practices on the sustainability of the environment.

LEARNING ASSUMED TO BE IN PLACE

Open

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Identify and describe the nature of soil.

OUTCOME RANGE

Physical properties of soil

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The principle that soil is a product of its environment is described.

ASSESSMENT CRITERION 2

2. Soil components are identified.

ASSESSMENT CRITERION RANGE

sand; loam; clay

ASSESSMENT CRITERION 3

3. Soil texture is identified.

ASSESSMENT CRITERION 4

4. Soil texture is described.

ASSESSMENT CRITERION 5

5. Soil structure is identified.

ASSESSMENT CRITERION RANGE

structured and structureless soil

SPECIFIC OUTCOME 2

Analyse soil as a factor in crop production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Reasons why soil is a factor in crop production are provided.

ASSESSMENT CRITERION 2

2. Factors affecting the role of soil in crop production are described.

ASSESSMENT CRITERION 3

3. The concept of soil productivity is explained.

ASSESSMENT CRITERION 4

4. Factors that improve soil productivity and crop production are investigated.

ASSESSMENT CRITERION 5

5. Soil limitations in crop production are identified.

ASSESSMENT CRITERION 6

6. Ways to overcome soil limitations in crop production are explained and justified.

SPECIFIC OUTCOME 3

Identify and describe climatic factors influencing crop production and their practical implications

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Climatic factors influencing crop production are identified.

ASSESSMENT CRITERION 2

2. Climatic factors influencing crop production are described.

ASSESSMENT CRITERION 3

3. The influence of climatic factors on crop production is explained.

ASSESSMENT CRITERION 4

4. Crop production practices that can be adapted to climatic factors are investigated and reported.

SPECIFIC OUTCOME 4

Identify and describe the importance of water as a factor in crop production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Sources of water are identified.

ASSESSMENT CRITERION RANGE

Source, quality and quantity

ASSESSMENT CRITERION 2

2. The role of water in crop production is explained.

ASSESSMENT CRITERION 3

3. The principle of water as a finite resource in crop production is explained.

ASSESSMENT CRITERION 4

4. The optimal use of water resources in crop production is explained.

ASSESSMENT CRITERION 5

5. Conclusions regarding the significance of water in crop production are drawn.

SPECIFIC OUTCOME 5

Identify and describe the influence of topography on crop production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Topography is defined and explained.

ASSESSMENT CRITERION 2

2. Topography as a factor influencing crop production is explained.

ASSESSMENT CRITERION 3

3. Topography as a factor influencing crop production practices is evaluated.

ASSESSMENT CRITERION 4

4. Practices for overcoming topographical limitations to crop production are investigated and reported.

SPECIFIC OUTCOME 6

Identify, describe and explain the biological organisms as a factor influencing crop production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The beneficial effects of micro-organisms on crop production are identified and described.

ASSESSMENT CRITERION 2

2. The harmful effects of micro-organisms in crop production are identified and described.

ASSESSMENT CRITERION 3

3. Control options of harmful micro-organisms in crop production are identified and described.

ASSESSMENT CRITERION 4

4. The beneficial effects of invertebrates in crop production are identified and described.

ASSESSMENT CRITERION 5

5. The harmful effects of invertebrates on crop production are identified and described.

ASSESSMENT CRITERION 6

6. Control options for invertebrates in crop production are identified and described.

ASSESSMENT CRITERION 7

7. Weeds as a limiting factor in crop production is explained.

ASSESSMENT CRITERION 8

8. Control options for weeds in crop production are discussed.

SPECIFIC OUTCOME 7

Assess the effects of crop production practices on the sustainability of the environment.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The concept of sustainability is explained and defined.

ASSESSMENT CRITERION 2

2. Existing crop production practices are identified.

ASSESSMENT CRITERION 3

3. Crop production practices that enhance agricultural sustainability are identified and explained.

ASSESSMENT CRITERION 4

4. Crop production practices that have a negative impact on the sustainability of the

environment are identified and explained.

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

UNIT STANDARD ESSENTIAL EMBEDDED KNOWLEDGE

Examples of crop production practices which enhance environmental sustainability include mulching, crop rotation, stubble mulching, green manure, composting, etc. This list is not all inclusive.

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;

UNIT STANDARD CCFO WORKING

Work effectively with others as a member of a team, group organisation and community;

UNIT STANDARD CCFO ORGANIZING

Organise and manage oneself and one's activities responsibly and effectively;

UNIT STANDARD CCFO COLLECTING

Collect, analyse, organise and critically evaluate information;

UNIT STANDARD CCFO COMMUNICATING

Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation;

UNIT STANDARD CCFO DEMONSTRATING

Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

UNIT STANDARD NOTES

Learners should be encouraged to work in groups when identifying and observing the factors influencing crop production.

Developmental Outcomes:

This unit standard supports the following developmental outcomes:

1. Reflecting on and exploring a variety of strategies to learn more effectively;
2. Participating as responsible citizens in the life of local, national and global communities;
3. Being culturally and aesthetically sensitive across a range of social contexts;
4. Exploring education and career opportunities; and
5. Developing entrepreneurial opportunities.

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Level 1.5.4**PLANT PRODUCTION**

TITLE	:	HARVEST AGRICULTURAL CROPS
SAQA	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	AGRICULTURE AND CONSERVATION
SUB-FIELD	:	PRIMARY AGRICULTURE
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to harvest crops as advised making use of basic harvesting tools.

Learners will gain specific knowledge and skills in harvesting techniques and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Demonstrate a basic understanding of the structure and function of a plant in relation to its environment.

NQF 1: Demonstrate an understanding of the basic concept of sustainable farming systems.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Use appropriate tools / equipment for pre-determined harvesting method.
2. Carry out sampling for maturity indexing according to pre-determined requirements.
3. Harvest crops following specific prescribed procedures.
4. Adhere to health, hygiene and safety during harvesting.
5. Dispose of waste.
6. Care and maintain equipment used.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Use appropriate tools / equipment for pre-determined harvesting method.

Range: Harvesting methods according to specific production context include, but are not limited to harvesting by hand, machine harvesting, and the use of certain equipment as advised.

Assessment criteria:

- 1.1 What tools to use for which harvesting process as advised are explained.
(Range: Tools, according to specific production context include, but are not limited to hands, trays, crates, picking bags, shears, ladders, etc.)
 - 1.2 The safe use of the harvesting tools as advised is demonstrated.
 - 1.3 The basic safety precautions to be adhered to while handling the harvesting tools are described.
 - 1.4 How the tools are cleaned and safely stored are demonstrated.
2. Carry out sampling for maturity indexing according to pre-determined requirements.

Range: Sampling may include, but is not limited to sampling by hand, etc.

Assessment criteria:

- 2.1 How to harvest the sample as advised is explained.
- 2.2 How the sample would be handled for testing is described.
- 2.3 The basic processing of the sample is discussed.

2.4 Why it is important to sample correctly is explained.

3. Harvest crops following specific prescribed procedures.

Range: Prescribed procedures include, but are not limited to quality specifications, maturity specifications, etc.

Assessment criteria:

3.1 How the crops will be harvested for the specific enterprise as advised, is described

3.2 How harvested crops will be handled before being transported to the processing or packing plant is described.

3.3 Illustrate How to harvest the crop as advised, is described.

3.4 The following of certain harvesting procedures are explained.

4. Adhere to personal health, hygiene and safety during harvesting.

Range: Personal health, hygiene and safety include but are not limited to covering minor cuts and wounds, washing hands, covering hair and the removal of jewellery etc.

Assessment criteria:

4.1 The types of safety clothes or equipment used during harvesting are described.

4.2 Why it is necessary to follow certain basic hygiene procedures during harvesting are explained.

4.3 The importance of revealing minor accidents that result in cuts or minor wounds to management and have it taken care of is discussed.

5. Dispose of waste.

Range: Waste includes, but is not limited to any bio-degradable or non bio-degradable materials that are not accepted as the primary product. Bio-degradable materials include parts of plants, fruit, flowers, etc. Non bio-degradable materials include, but are not limited to plastics, glass, metals, etc.

Assessment criteria:

5.1 How waste is categorized is explained.

5.2 The importance of disposing of waste as prescribed is explained.

5.3 Demonstrate and describe How waste is collected as prescribed is demonstrated and described.

5.4 How waste is loaded and/or deposited according to procedures is described.

6. Care for and maintain equipment used during harvesting under close supervision.

Range: Care and maintaining of equipment include but are not limited to the oiling, sharpening, cleaning, sterilizing and storage of equipment as prescribed. Equipment include, but are not limited to hand tools, power tools, machinery, etc.

Assessment criteria:

- 6.1 Why it is important that equipment is cleaned, sterilized and stored as prescribed is explained.
- 6.2 How you would clean and maintain the equipment used in the specific enterprise is demonstrated.
- 6.3 How you would store the equipment is described.
- 6.4 The procedure followed should you find defaults in the equipment is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 2 to 6.
2. **Self-Management** relates to specific outcomes 1 to 6.
3. **Interpreting Information** relates to specific outcomes 1 to 6.
4. **Communication** relates to specific outcomes 1 to 6.
5. **Science and Technology** relates to specific outcomes 1 to 6.
6. **Self-development** relates to specific outcomes 1 to 6.
7. **Teamwork:** relates to all specific outcomes.
8. **Inter relatedness:** relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Principles of harvesting a crop are understood.
2. Names and functions of tools and materials.
3. Sight, smell and touch are developed in this process.
4. Safe handling procedures of tools and materials.
5. Purpose of the various harvesting methods is understood.
6. Plant physiology and anatomy.
7. Importance of harvesting area being clean from waste material.

8. Basic knowledge of Occupational Health and Safety Act.
9. Use of sensory cues to show harvest readiness.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.5.5**PLANT PRODUCTION**

TITLE	:	OPERATE AND MAINTAIN IRRIGATION SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	PAETA/Crop Protection Products
UNIT STANDARD LEVEL	:	1
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A Learner achieving this Unit Standard will be able to, inter alia: Carry out basic irrigation system and equipment maintenance; operate an irrigation system according to set procedures; identify the basic factors affecting crop growth under irrigation.

Learners will gain specific knowledge and skills in plant production and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and obtain appropriate tools for basic maintenance of irrigation systems.
2. Operate an irrigation system according to set procedures.
3. Identify the basic factors affecting crop growth under irrigation.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Identify and obtain appropriate tools for basic maintenance of irrigation systems.

Range: Includes but not limited to: Spade, pliers, binding wire, hose-clamps couplings, ties, joints, reducers, etc.

Assessment criteria:

- 1.1 Appropriate clothing is worn.
(Range: Overall, gumboots, hat, etc.)
- 1.2 The ability to identify and select task appropriate equipment is demonstrated.
- 1.3 The correct usage of equipment is demonstrated.
- 1.4 Problems encountered with the use of equipment are identified and corrected.
(Range: Spade needs sharpening, wrong gauge binding wire, couplings not suited to specific pipe type, etc.)
- 1.5 Tools are appropriately cleaned and stored after use.
(Range: Washing, greasing, oiling, etc.)
- 1.6 Faulty equipment is reported to Supervisor.

- 2 Operate an irrigation system according to set procedures.

Range: Includes but is not limited to: flow and pressure regulation, cleaning filters, pipeline maintenance, cleaning of blocked sprinklers, shifting of pipes, etc.

Assessment criteria:

- 2.1 The correct usage of measuring equipment is demonstrated.
(Range: Pressure and flow gauges, etc.)
- 2.2 The ability to service and clean equipment is demonstrated.
(Range: Filters, pipes, sprinklers, etc.)
- 2.3 The ability to carry out pipeline maintenance is demonstrated.
(Range: Repairs, replacement, flushing, etc.)
- 2.4 The correct method of shifting pipes is demonstrated.
(Range: Pipes, draglines, spacing, avoidance of crop damage, etc.)

- 3 Identify the basic factors affecting crop growth under irrigation

Range: Includes but is not limited to effect of lack of water and fertilizer, irrigation not started/stopped as per schedule, effect of lack of maintenance, effect of incorrect pressure/flow rate, etc.

Assessment criteria:

- 3.1 The basic factors affecting crop growth are described.
(Range: Sunshine, water, fertilizer, good soil, etc.)
- 3.2 The consequences of the pressure/flow rate too low/ high are described.
- 3.3 The consequences if pipes are shifted too early/late are described.
- 3.4 The consequences if the pipeline spacing is incorrect are described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 to 3.
2. **Teamwork** relates to specific outcomes 1 to 3.
3. **Self-organisation and management** relates to specific outcomes 1 to 3.
4. **Information evaluation** relates to specific outcomes 1 to 3.
5. **Communication** relates to specific outcomes 1 to 3.
6. **Use science and technology** relates to specific outcomes 1 to 3.
7. **Inter-relatedness of systems** relates to specific outcomes 1 to 3.
8. **Self-development** relates to specific outcomes 1 to 3.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of tools and equipment used during irrigation.
2. Function of protective clothing.
3. Attributes of basic parts of the implemented irrigation system e.g. nozzles, quick-coupling pipes, etc.
4. Sensory cues such as visual perceptions of dry and wet spots, too high/low pressure, etc.
5. Purpose of irrigation Implications of defective irrigation systems.
6. Implications of not reporting non-conformance of irrigation systems.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.5.6**PLANT PRODUCTION**

TITLE:	:	MANIPULATE PLANTS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Training
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to train (manipulate) plants using pre-determined methods and techniques under close supervision. This is an entry-level Unit Standard and provides a foundation for learners who are engaged in crop production where plants are grown using trellises and other guiding structures.

Learners will gain specific knowledge and skills in manipulation techniques and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Select, use and care for hand tools, basic equipment and infrastructure

NQF 1: Demonstrate a basic understanding of the structure and function of a plant in relation to its environment.

NQF 1: Demonstrate an understanding of the basic concept of sustainable farming systems.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Use tools and / or equipment for a pre-determined manipulation method in the correct way.
2. Develop frameworks as part of plant manipulation methods.
3. Understand flower and fruit manipulation principles.
4. Apply correct simple pruning principles appropriate to the crop.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

1. Use tools and / or equipment for a pre-determined manipulation method in the correct way.

Range: Manipulation methods may include, but are not limited to, framework development, flower and fruit manipulation, and pruning.

Tools may include, but are not limited to, pruning shears, tie-back material, etc.

Assessment criteria:

- 1.1 The correct tools for the manipulation method are selected.
 - 1.2 The correct manipulation method is identified.
 - 1.3 The correct stage of plant growth for the crop and the selected manipulation method is identified.
 - 1.4 The manipulation method is executed correctly.
 - 1.5 Equipment is used safely and in such a way to prevent damage to tools and the plant material.
 - 1.6 Tools or material are used appropriately to pre-determined manipulation method.
2. Develop frameworks as part of plant manipulation methods.

Range: Trellising methods may include, but are not limited to, Central leader system, Tatura system, two-wire system, slanted cap, factory-cap, and/or Façade system.

Assessment criteria:

- 2.1 The trellis is applied by taking into account the height of the stem, the spacing of bearers, shoots and spindles.
 - 2.2 The plant framework is developed appropriate for the identified trellising system.
 - 2.3 The growing points and bearing unites are manipulated according to the identified trellising method.
 - 2.4 The plant is shaped to determine the position of bearing units according to the identified cultivation practice.
3. Understand flower and fruit manipulation principles.

Range: Flower and fruit manipulation principles may include, but are not limited to, temperature, daylight length, bud dormancy breakers, thinning, fruit enlargement, ripening, preparation, and chemical and physical quality improvement methods.

Assessment criteria:

- 3.1 Fruit and flower manipulation principles are listed.
 - 3.2 The correct spray chemicals for flower/fruit manipulation are identified.
 - 3.3 Physical manipulation on the fruit and flowers of an identified crop is carried out correctly.
(Range: Physical manipulation may include, but is not limited to, thinning, shouldering, brushing, and shortening).
4. Apply correct simple pruning principles appropriate to the crop.

Range: Pruning may include, but is not limited to, summer and winter pruning, and canopy management.

Assessment criteria:

- 4.1 Elementary pruning principles are explained.
- 4.2 The appropriate pruning method for a specified crop is identified.
- 4.3 Unwanted growth is removed according to the pre-determined manipulation method.
(Range: Unwanted growth includes, but is not limited to shoots, branches, stems, etc.)
- 4.4 Pruning actions are executed correctly.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 2, 3 and 4.
2. **Teamwork:** relates to specific outcomes 2, 3 and 4.
3. **Self-Management:** relates to specific outcomes 1 to 4.
4. **Interpreting Information:** relates to specific outcomes 1 to 4.
5. **Communication:** relates to specific outcomes 1 to 4.
6. **Use Science and Technology:** relates to specific outcomes 2, 3 and 4.
7. **Self Development:** relates to specific outcomes 1 to 4.
8. **Inter relatedness:** relates to specific outcomes 2, 3 and 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of tools and materials used in plant manipulation.
2. The use of elementary trellising methods.
3. The use of elementary fruit and flower manipulation methods.
4. The purpose of developing knowledge in the field of plant manipulation.
5. The principles of pruning.
6. The elementary guidelines applied in plant manipulation.
7. Safe handling procedures of tools and material.
8. The Occupational, Health and Safety Act.
9. Maintaining hygienic procedures of tools and material as to prevent spreading of diseases.
10. Elementary plant physiology and anatomy are relevant to pruning and manipulation.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.5.7**PLANT PRODUCTION**

TITLE	:	RECOGNISE PESTS, DISEASES AND WEEDS ON CROPS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to understand the basic anatomy of an insect, the different life cycles and how insects and diseases cause damage. Furthermore, the learner will be able to recognize and report on insects, disease symptoms and common weeds.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of pest control in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Distinguish between insects and other classes of animals.
 2. Describe the general anatomy of an insect and where the crop damaging appendages are found.
 3. Explain the different life cycles of an insect.
 4. Identify and explain the damage insects cause.
 5. Notice and report insects (pests and beneficial insects), disease symptoms and weeds to the supervisor.
 6. Recognize that not all insects are pests, and that not all pests are insects.
 7. Name what causes diseases in plants and explain the basic life cycles of microbial diseases.
 8. Explain the ways in which insects, diseases and weeds can spread.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Distinguish between insects and other classes of animals.

Range: Other classes of animals include but are not limited to mammals, arachnids etc.

Assessment criteria:

- 1.1 The broad classification of animals is explained.
- 1.2 The broad classification of insects is explained.
- 1.3 The basic difference between the broad classifications of insects is described.
(Range: Includes but is not limited to that some insects are winged while others are not winged).

- 2 Describe the general anatomy of an insect and where the crop damaging appendages are found.

Range: General anatomy includes but is not limited to head, thorax, abdomen, etc.

Assessment criteria:

- 2.1 The different broad anatomical parts of an insect are explained.
- 2.2 The difference between an insect and other animal classes is broadly described.
- 2.3 The location of the mouthparts is discussed.
- 2.4 The different types of mouthparts found are described.

2.5 The different types of appendages found on the abdomen are described.

3 Explain the different life cycles of an insect.

Range: Life cycles include but are not limited to complete and incomplete metamorphosis.

Assessment criteria:

- 3.1 The different life cycles in the life of an insect are described.
 - 3.2 The difference between the two is explained.
 - 3.3 A complete metamorphosis is explained by using an example.
 - 3.4 An incomplete metamorphosis is explained by using an example.
 - 3.5 The affect of these lifecycles on the control methods applied is discussed.
4. Identify and explain the damage insects cause.

Range: Damage includes but is not limited to biting, chewing, laying eggs etc.

Assessment criteria:

- 4.1 The damage caused by the feeding habits of certain insects is described.
- 4.2 The damage caused by certain insects by stinging or laying their eggs into the crop or animal it attacks is described.
- 4.3 The damage caused by certain insects by being vectors for other pests and diseases is discussed.
- 4.4 How this affects the methods of control of these insects is explained.

5. Scout for insects (pests and beneficial insects), disease symptoms and weeds.

Assessment criteria:

- 5.1 Pests and beneficial insects on specific crops are recognized and reported.
- 5.2 Observe and report on any Damage, or disease symptoms is reported and observed.
- 5.3 Monitoring of pests after chemical application is supported.
- 5.4 Hygiene measures (personal, equipment and plant) are applied.

6. Recognize that not all insects are pests, and that not all pests are insects.

Range: Pests include but are not limited to insects and animals causing problems on crops in other agricultural enterprises.

Assessment criteria:

- 6.1 The difference between problem insects and beneficial (predatory) insects is discussed.
- 6.2 The fact that other animal classes can be pests to agricultural enterprises is explained.

6.3 How the presence of beneficial insects affects the control methods of pests is briefly explained.

7. Name what causes diseases in plants and explain the basic life cycles of microbial diseases.

Range: Plant diseases can include but are not limited to deficiency diseases or microbial diseases such as those caused by fungi, bacteria or viruses.

Assessment criteria:

7.1 The differences between symptoms of plant deficiencies and plant diseases are explained.

7.2 The different microbes that result in plant diseases are discussed.

7.3 The basic life cycles of fungal diseases are discussed.

7.4 How a virus affects a plant is described.

7.5 The nature of a bacterial disease is described.

8. Explain the ways in which insects, diseases and weeds can spread.

Assessment criteria:

8.1 The factors playing a role in the spreading of insects, diseases and weeds are identified.

8.2 The role of each of the factors is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the

specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** Relates to specific outcomes 4 – 6.
2. **Self-management:** Relates to specific outcomes 1 to 6.
3. **Interpreting Information:** Relates to specific outcomes 2-6.
4. **Communication:** Relates to specific outcomes 1 to 6.
5. **Science and Technology:** Relates to specific outcomes 1 to 6.
6. **The world as a set of related systems:** Only basic as a particular level
7. **Self-development:** Relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Insect anatomy.
2. Categories and types of pests.
3. Pest levels that cause economic loss.

4. Common plant diseases.
5. Common pests.
6. Common predators.
7. Common beneficial insects.
8. Common diseases.
9. Life cycle of an insect.
10. Natural enemies.
11. Ways of spreading.
12. Contamination.
13. Implication of contamination on the quality and marketability of the product.
14. Importance of hygiene.
15. Scouting procedure.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.5.8**PLANT PRODUCTION**

TITLE	:	PROPAGATE PLANTS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Anatomy and Physiology
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to assist with the propagating of plants.

Learners will gain specific knowledge and skills in plant propagation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Select, use and care for hand tools and basic equipment and infrastructure.

NQF 1: Demonstrate a basic understanding of the structure and function of a plant in relation to its environment.

NQF 1: Demonstrate an understanding of the basic concept of sustainable farming systems.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Identify the propagation environment within a specific agricultural production context.
 2. Prepare propagation material and propagation media according to specific instructions
 3. Carry out routine propagation procedures within the specific agricultural propagation context under specific (close) supervision.
 4. Carry out routine post propagation procedures within the specific production context under close supervision.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify the propagation environment within a specific agricultural production context.

Range: The propagation environment includes but is not limited to open field and protective structures (plastic, glass, polycarbonate, fibreglass, shade cloth, etc.) as relevant to the context of application.

Assessment criteria:

- 1.1 A basic / elementary comprehension of the components of the propagation environment is demonstrated.
 - 1.2 The ability to identify possible problems in the propagation environment is demonstrated (e.g. air conditioners or irrigation systems not working etc.).
 - 1.3 An elementary comprehension of hygiene procedures in the propagation environment is demonstrated.
2. Prepare propagation material and propagation media according to specific instructions.

Range: Propagation material includes but is not limited to sexual reproductive material such as seeds etc, and asexual reproductive material such as cuttings, bulbs, rhizomes, corms, tubers etc. as relevant to the context of application.

Propagation media includes but is not limited to growing media such as compost, peat moss, germination ovens etc. as relevant to the context of application.

The propagation environment refers to, but is not limited to plastic, glass, polycarbonate, fibreglass shade cloth, open fields etc. as relevant to the context of application.

Assessment criteria:

- 2.1 The ability to adequately prepare propagation material as per instructions given based on the specific plant or crop is demonstrated.
 - 2.2 The preparation of the propagation media as prescribed for the specific plant or crop is demonstrated.
 - 2.3 The use of the propagation environment to be used per crop as advised is explained.
 - 2.4 The necessary precautions needed or safety requirements necessary as prescribed for the specific crop or plant or equipment being used is described.
3. Carry out routine propagation procedures within the specific agricultural propagation context under supervision.

Range: The propagation procedures include but are not limited to cuttings, scarification, temperature trays, seed preparation etc. as relevant to the context of application.

Agricultural propagation context includes but is not limited to open fields, glasshouses, shade houses aquatic environments etc. as relevant to the context of application.

Assessment criteria:

- 3.1 The proper use of the equipment for the specific activity as trained is demonstrated.
 - 3.2 The specific propagation procedure for the specific plant type is demonstrated.
 - 3.3 The ability to appropriately handle the propagation material is demonstrated.
 - 3.4 The ability to appropriately manage the propagated material is demonstrated.
4. Carry out routine post propagation procedures within the specific production context under supervision.

Range: The maintenance of the propagation material may include but is not limited to watering, weeding, fertilization, temperature control, pest and disease control etc. Hygiene requirements include but are not limited to sterilizing of equipment, environment, pest and disease control etc.

Assessment criteria:

- 4.1 The maintenance of the propagation material is demonstrated.
- 4.2 The maintaining of the necessary hygiene requirements is demonstrated.
- 4.3 The ability to take the necessary safety precautions when working with specific tools, equipment and chemicals etc is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Self-Management** relates to specific outcomes 1 to 4.
2. **Interpreting Information** relates to specific outcomes 2 and 3.
3. **Self-organisation and management** relates to specific outcomes 1 to 4.
4. **Communication** relates to specific outcomes 1 to 3.
5. **Use science and technology** relates to specific outcomes 1 to 4.
6. **Self-development** relates to specific outcomes 1 to 3.
7. **Teamwork:** relates to specific outcomes.
8. **Problem solving:** relates to specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of tools and material required for plant propagation.
2. Descriptions and characteristics of plant propagation.
3. Purpose of being able to propagate plant material.
4. The correct procedures to be followed when propagating plant material.
5. Basic safety requirements related to tools, chemicals, propagation environment and procedures according to the relevant legislation.
6. Categories of growing media – wet and dry media.
7. Categories of weeds, pest and diseases.
8. Rules and principles of fertilization and irrigation.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.5.9**PLANT PRODUCTION**

TITLE : FERTILISE SOIL AND ATTEND TO BASIC PLANT NUTRITION

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 1

CREDIT : 5

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to apply soil nutrient preparations in a safe, effective and responsible manner to the benefit of plant/crop growth.

Learners will gain specific knowledge and skills in soil fertilisation and plant nutrition and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Apply appropriate nutrient substances to soils or crops under close supervision.
 2. Understand how to make compost and when to use it.
 3. Identify the basic symptoms of nutritional deficiencies in different crops.
 4. Demonstrate an understanding of soil properties.
 5. Prepare soil using hand-held tools and low-technology ploughing implements.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Apply appropriate nutrient substances to soils or crops under close supervision.

Range: Soil nutrition includes but is not limited to soil nutrients (lime, liquid fertiliser, chemical fertilisers [single and mixtures], trace elements) and can include organic soil improvement methods and substances and techniques (compost, organic teas, and mulching).

The methods and techniques of applications can include manual, broadcast, liquid methods, leaf nutrition and slurry, depending on what is required in the specific context.

Assessment criteria:

- 1.1 The ability to apply a pre-measured amount of the correct soil nutrition substance on an indicated area of soil is demonstrated.
- 1.2 The ability to identify nutrients that will be applied is demonstrated.

2. Understand how to make compost and when to use it.

Range: Basic understanding of Carbon-Nitrogen ratios, familiarity with the value of common local sources of organic waste; understanding of the importance of soil organic matter and its role in holding soil nutrients and water, and in combating soil acidity.

Assessment criteria:

- 2.1 How to store manure so that nutrients are not lost is shown.
- 2.2 Making a compost heap, mixing manure (or other nitrogen source) with organic matter, adding appropriate amounts of water is demonstrated.
- 2.3 The composting process is managed and it is recognised when compost is ready to use, and the nutrient-loss dangers of leaving the heap too long is recognised.

3. Identify basic symptoms of nutritional deficiencies in different crops.

Range: Nitrogen, Phosphorous and Magnesium deficiencies.

Assessment criteria:

- 3.1 The colour change on plant leaves, and/or fruit/ plant abnormalities, compared with healthy plants is recognised.
- 3.2 The position of the discoloured leaves is described.
4. Demonstrate a basic understanding of soil properties.

Range: Soil properties refer to the texture and structure, water holding and drainage capacity, and soil composition in terms of silt/clay/gravel ratios.

Assessment criteria:

- 4.1. Soil structure and texture are identified using simple tests/ observations
- 4.2. Composition of soil based on simple tests and observations is described
- 4.2. The advantages and disadvantages of different soil types in a specific context are described
5. Apply soil preparation tasks that require hand-held tools and low-technology ploughing implements.

Range: Soil preparation refers to low-technology plough implements and hand-held tools such as picks, shovels, forks and/or animal drawn tools for soil preparation. Soil preparation refers to the application of tools to prepare a piece of ground to achieve appropriate tilth, texture and friability.

Assessment criteria:

- 5.1. The advantages and disadvantages of effective and ineffective soil preparation are described, as well as their effects on plant roots.
- 5.2. The function and correct use of simple ploughing tools in soil preparation are explained and demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to all outcomes.
2. **Teamwork:** relates to all outcomes.
3. **Self-management:** relates to all outcomes..
4. **Interpreting Information:** relates to all outcomes
5. **Communicate:** relates to all outcomes.
6. **Use Science and Technology:** relates to all outcomes.
7. **The world as a set of related systems:** relates to all outcomes.
8. **Self-development:** relates to all outcomes.

EMBEDDED KNOWLEDGE

The person achieving this unit standard is able to:

1. Use specific types of nutrient substances.
2. Work within identified safety standards.
3. Measure accurately.
4. Apply specified substances.
5. Have a basic understanding of soil profiles, structure and texture, about the physical components of soil, the biological components of soil, how soil is formed, how nutrients are absorbed by plants.
6. How to conduct simple soil tests and observations in order to make basic soil assessments based on texture, colour, vegetative cover, and smell.
7. How seeds germinate and what kind of environment is needed to achieve maximum and effective germination and early root growth.
8. What tools to achieve with which soil preparation results.
9. The learner must know the difference between wanted and unwanted vegetation.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Application methods of nutrients.
2. Need for nutrients for plants.
3. Basic soil preparation.
4. Basic soil conservation.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.6.1

ELECTIVE

TITLE : APPLY BASIC DAIRY PRODUCTION PRACTICES

SAQA LOGO :

UNIT STANDARD NO:

LEVEL : 1

CREDITS : 6

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to handle dairy animals in the parlour and will be able to carry out effective cleaning of the milking parlour, its environment and the milking utensils. In addition they will be well positioned to extend their learning and practice into other areas of dairy production, for the efficient and effective management of dairy parlours.

Learners will gain specific knowledge and skills in dairy practices and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 1: Observation and handling of animals.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Demonstrate the ability to bring animals to a milking station, restrain them and allow them out again.
2. Demonstrate the ability to clean the working area in the parlour.
3. Demonstrate the ability to ensure the free movement of wastewater away from the working area.
4. Demonstrate the ability to remove solid waste to designated sites.
5. Demonstrate the ability to clean dairy utensils effectively.
6. Demonstrate basic routines for fly control.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate the ability to bring animals to a milking station, restrain them and allow them out again.

Range: Dairy animals include but are not limited to sheep, cattle or goats as relevant to the context of application.

Assessment criteria:

- 1.1 The ability to move animals into the milking parlour and to its designated milking station is demonstrated.
- 1.2 The ability to restrain or secure the animal in humane way is demonstrated.
- 1.3 The ability to move animals in a controlled manner is demonstrated.

2. Demonstrate the ability to clean the working area.

Range: Effective cleaning includes, but is not necessary limited to the disposal of manure and wastewater and the control of flies.

Assessment criteria:

- 2.1 The ability to prepare each milking point is demonstrated.

- 2.2 The ability to use brooms to remove stubborn solid waste is demonstrated.
- 2.3 The ability to use water hoses in the correct way is demonstrated.

- 3. The ability to ensure the free movement of wastewater away from the working area is demonstrated.

Assessment criteria:

- 3.1 Knowledge of the drainage lay out is demonstrated.
- 3.2 The ability to locate blockages and clear them is demonstrated.
- 3.3 The ability to report to supervisor of any problems cannot be resolved is explained.

- 4. Demonstrate the ability to remove solid waste to designated sites.

Assessment criteria:

- 4.1 The knowledge of the locality of solid waste disposable sites is demonstrated.
- 4.2 The ability to move waste solids to these sites is demonstrated.
- 4.3 The ability to clean the equipment used to remove solid waste is demonstrated.

- 5. Demonstrate the ability to clean dairy utensils effectively

Range: Utensils include but are not limited to milk cans, piping, vacuum pump systems, sieves and protective clothing

Assessment criteria:

- 5.1 The initial cold-water rinse is demonstrated.
- 5.2 The effective use of detergent is demonstrated.
- 5.3 The need for scrubbing where necessary is identified.
- 5.4 The final cold-water rinse is demonstrated.
- 5.5 Steam sterilization where applicable is demonstrated.

- 6. Demonstrate basic routines for fly control.

Range: This will include but is not limited to composting of solid waste, chemical sprays, baiting stations or mechanical trapping.

Assessment criteria:

- 6.1 The knowledge of conditions suited to fly breeding is demonstrated.
- 6.2 The ability to identify fly breeding sites is demonstrated.
- 6.3 The ability to use chemical sprays and fly traps and baits is demonstrated.
- 6.4 Other methods of fly control are demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to outcomes 2 and 3.
2. **Self-management** relates to outcomes 1-6.
3. **Communication** relates to outcomes 1 – 6.
4. **Interpreting information** relates to outcomes 2 – 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The name and functions of all utensils being used.
2. The sensory cues of parlour hygiene.
3. The purpose of the observations to be made.
4. All applicable rules and codes of conduct relating to the movement and handling of animals.
5. Develop a two-way relationship with supervisor and co-workers in regard to responsibilities and reporting (Communication Skills).

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.6.2**ELECTIVE**

TITLE	:	UNDERSTAND THE BASIC PRACTICES OF BEEKEEPING AND THE BENEFIT THEREOF FOR AGRICULTURE.
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	1
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to understand the basic nutritional sources for bees as found in plants in environmental niches. In addition they will be well positioned to extend their learning and practice into other areas of beekeeping to the benefit of Agriculture, in terms of pollination and the production of bee products.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No previous learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand and describe the origin of nectar, pollen and propolis in plants.
2. Understand and describe the effects of environmental factors on the production of nutrients and products in a plant.

3. Understand and describe the names and identification of the most important known nutritional resource plants for nectar, pollen and propolis production.
4. Understand and describe the potential of the most important known bee-plants.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand and describe the origin of nectar, pollen and propolis in plants.

Range: Plants include but are not limited to flowering trees, shrubs (including aquatic plants, perennial herbs, shrublets and succulents), weeds, crop plants (commercial and garden), creepers and semi-climbers, annuals and biennials, bulbous plants (corms, rhizomes and tubers), ground covers, eucalypts.

Assessment criteria:

- 1.1 The origin, purpose and composition of nectar in plants are identified and illustrated.
- 1.2 The origin, purpose and composition of pollen in plants are identified and illustrated.
- 1.3 The origin, purpose and composition of propolis in plants are identified and illustrated.

2. Understand and describe the effects of environmental factors on the production of nutrient and products in a plant.

Range: Environmental factors include but are not limited to temperature, atmospheric and soil moisture, daylight hours, rate of daylight hour change, wind, sunlight, soil type and structure, stress factors such as damage, seasons.

Assessment criteria:

- 2.1 The effect of soil types, origin and structure on nectar production is understood and described.
- 2.2 The effect of climate and water on nectar production is understood and described.
- 2.3 The effect of time on nectar production is understood and described.
(Range: Time includes but is not limited to daylight hours, rate of change of daylight hours, time of day, sunlight hours.)

2. Understand and describe the names, identification of the most important known nutritional resource plants for nectar, pollen and propolis production.

Range: Plants include but are not limited to flowering trees, shrubs (including aquatic plants, perennial herbs, shrublets and succulents), weeds, crop plants (commercial and garden), creepers and semi-climbers, annuals and biennials, bulbous plants (corms, rhizomes and tubers), ground covers, eucalypts.

Assessment criteria:

- 3.1 A good working knowledge of the most important nectar and pollen-producing flora is attained.
 - 3.2 Estimates for the potential value of the most important pollen and nectar-producing flora are provided.
 - 3.3 The knowledge of the nectar plants by indicating them in situ is demonstrated and illustrated.
4. Understand and describe the potential of the most important known bee-plants

Range: The range of potential of bee plants include but are not limited to their value as producers of pollen, propolis, nectar or as a source of placement for pollination.

Assessment criteria:

- 4.1 The effect of the climatological influences on production of pollen, nectar and propolis in the specific plants is described.
- 4.2 The growth and form of the specific plant with reference to quantity of flowers produced are described.
- 4.3 The production of nectar, pollen and propolis, based on the physiology of the plant and its flowers is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

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- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 3.
2. **Self-Organisation and Management:** relates to specific outcomes 1 to 3.
3. **Communication:** relates to specific outcomes 1 to 3.
4. **Personal Development:** relates to specific outcomes 1 to 3.
5. **Interpretation of information:** relates to specific outcomes 1 to 3.
6. **The world as a set:** relates to specific outcomes 1 to 3.
7. **Science and technology:** relates to specific outcomes 1 to 3.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:]

1. Basic comprehension and understanding of the specific nectar and pollen bearing plant species.
2. Origin of nectar, pollen and propolis.
3. Bee plant botany.
4. Sensory observation and evaluation of bee plants over time.

5. Observation of bee visits to various plants over time.
6. Evaluation of the potential of bee plants for production.
7. Bee plant classification, nomenclature and common name terms.
8. The purpose of learning about bee plants and botany.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.6.3**ELECTIVE**

TITLE	:	DEMONSTRATE AN UNDERSTANDING OF AGRICULTURE AND CONSERVATION AS A SYSTEM AT MICRO LEVEL
SAQA	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	AGRICULTURE AND CONSERVATION
SUB-FIELD	:	PRIMARY AGRICULTURE
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to demonstrate an ability to understand basic information about the Tourism industry, and more specifically the Agri/Ecotourism business, as well as attractions at micro level.

In addition learners will be well positioned to extend their learning and practice into other areas of agriculture, or to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural practices and aspects of tourism as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No previous learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Have a basic knowledge of the tourist industry.
 2. Identify the Agri/Ecotourist on the site (micro level).
 3. Recognize the needs of the tourist at this level.
 4. Identify and locate the tourism infrastructure, attractions and activities on the agri/eco site.
 5. State operational, organizational and tourism practices on the Agri/Ecotourism site.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Have a basic knowledge about the tourism industry.

Range: Regional, provincial, national and international tourism organizations; differences between the needs of local and foreign tourists. Micro-level, that is on the specific farm or reserve and/or reserve. Contribution to job-creation; income generation and literacy at micro-level.

Assessment criteria:

- 1.1 An understanding of what is tourism is demonstrated.
- 1.2 An awareness of the various organizations involved with tourism at the international level is demonstrated.
- 1.3 An awareness of the various organizations involved with tourism at the national level is demonstrated.
- 1.4 An awareness of the various organizations involved with tourism at the provincial level is demonstrated.
- 1.5 An awareness of the various organizations involved with tourism at regional level is demonstrated.
- 1.6 An ability to recall the value of tourism to South Africa and its communities is demonstrated.

2. Identify the Agri/Ecotourist on the local site (micro level – farm/reserve).

Range: Local and foreign tourist. Micro-level, that is on the specific farm or reserve and/or reserve. Contribution to job-creation, income generation and literacy; at micro-level.

Assessment criteria:

- 2.1 Various categories of Agri/Ecotourist at local level are identified and recalled.

- 2.2 The characteristics of the Agri/Ecotourist at local level are described.
- 2.3 The socio-economic contribution of the Agri/Ecotourist at local level is understood and recalled.

- 3. Recognize the needs of the tourist at this (local) level.

Range: Affordability, social, safety, security, education, leisure, cultural, environmental.

Assessment criteria:

- 3.1 The communication needs of the tourist on site are identified.
- 3.2 The cultural needs of the tourist are identified.
- 3.3 The safety and security needs of the tourist are identified.
- 3.4 The needs to see specific attractions on-site are identified.
- 3.5 Identify The educational needs of the tourists are identified.
- 3.6 The needs of tourists regarding the experiencing of some attractions are identified and shared.

- 4. Identify and locate the tourism infrastructure, attractions and activities on the agri/eco site.

Range: Natural to man-made at micro-level.

Assessment criteria:

- 4.1 Tourism infrastructure is described and directed.
- 4.2 The local attractions on the farm/reserve are directed, guided and discussed with tourists.
- 4.3 Limited tourism activities on the farm or reserve are shared.

- 5. State operational, organizational and tourism practices on the Agri/Ecotourism site.

Range: Micro-level and enterprise specific. Ownership, management, employees, form of business.

Assessment criteria:

- 5.1 Agricultural/environmental practices and operations at farm and/or reserve level are identified and related.
- 5.2 Organizational arrangements of enterprises at micro level are described in an elemental way.
- 5.3 Tourism as well as agricultural and conservation practices on the farm/reserve (site) are described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem-solving** relates to no outcomes 1-5.
2. **Teamwork** relates to no outcomes 1-5.
3. **Self-organization and management** relates to specific outcomes 1-5.
4. **Information evaluation** relates to specific outcomes 1-5.
5. **Communication** relates to specific outcomes 1-5.
6. **Use science and technology** relates to specific outcomes 1-5.
7. **Inter-relatedness of systems** relates to specific outcomes 1-5.
8. **Self-development** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Knowledge on tourism as industry.
2. Knowledge on regional, provincial, national and international tourism organizations.
3. Categories of tourists.
4. Needs of tourists (e.g. health & hygiene, safety & security, adventure, leisure).
5. Knowledge of attractions and activities needed by tourists.
6. Infrastructure: Layout needed by tourists.
7. An understanding of agricultural and conservation practices on farm/reserve level.
8. Be able to partake in limited guiding experience.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.6.4**ELECTIVE****TITLE:****SORT AND HANDLE ANIMAL FIBRE**

SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to handle fleeces and class skirting, belly pieces and lox according to nationally determined standards. The person will achieve this by making judgements based on the appearance of the wool according to the above-mentioned standards.

In addition they will be well positioned to extend their learning and practice into other areas of agriculture and in particular sheep and goat production. The quality of the fibre handling and sorting will be improved resulting in higher levels of profitability.

Learners will gain specific knowledge and skills in animal fibre handling and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate the picking up and casting of a fleece.
 2. Show the ability to skirt a fleece to remove inferior wool.
 3. Identify the different components of a fleece and class the fleece accordingly.
 4. Identify and class skirtings, belly pieces and lox.
 5. Demonstrate the pressing, closing and marking of bales.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate the picking up and casting of a fleece.

Range: The person will be able to apply this skill in one of the following contexts: Merino; Cross breeds; White wools; Karakul; Mohair.

Assessment criteria:

- 1.1 The fleece is gathered according to a set procedure on the floor of the shearing shed.
- 1.2 The fleece is grabbed according to the prescribed guidelines and procedure.
- 1.3 The fleece is picked up off the floor intact and taken to the throwing table.
- 1.4 The fleece is thrown evenly and intact onto the throwing table.

2. Show the ability to skirt a fleece to remove inferior wool

Range: The person will be able to apply this skill in one of the following contexts: Merino; Cross breeds; White wools; Karakul; Mohair.

Assessment criteria:

- 2.1 The fleece is skirted according to the national guidelines.
- 2.2 All the inferior wool is removed from the fleece.
(Range: Inferior wool includes but is not limited to wool stained by dung, urine, sweat, belly type, short pieces, lox.)
- 2.3 All lox or short wool is removed from the fleece.
- 2.4 Off-skirts are removed.

3. Identify the different components of a fleece and class the fleece accordingly.

Range: The person will be able to apply this skill in one of the following contexts: Merino; Cross breeds; White wools; Karakul; Mohair.

Assessment criteria:

- 3.1 Britch wool is separated from the fleece wool according to the standards.
 - 3.2 Neck wool and the crow's nest is removed from the fleece wool according to the standards.
 - 3.3 Shoulder wool and speedy patches are recognised if required according to the standards.
 - 3.4 Back wool is separated from the fleece wool if required according to the standards.
 - 3.5 Fleece wool is classified according to the nationally accepted standards.
4. Identify and class skirtings, belly pieces and lox pieces.

Assessment criteria:

- 4.1 Skirtings are correctly classed according to length, appearance and the national standards.
 - 4.2 Belly pieces are correctly classed according to length, appearance and the national standards.
 - 4.3 Lox pieces are correctly classed according to length, type of stain, location on the body and the national standards.
 - 4.4 All pieces are classed and placed in the relevant bins for baling.
5. Demonstrate the pressing, closing and marking of bales

Assessment criteria:

- 5.1 The press is prepared and cleaned appropriately to prevent contamination.
- 5.2 Wool is loaded and pressed according to minimum and maximum weight criteria.
- 5.3 The bale is closed by the application of an appropriate closing technique.
- 5.4 The bale is marked correctly by applying the correct symbols according to guidelines.
- 5.5 Health and safety requirements are adhered to whilst pressing the wool.
- 5.6 Contamination is avoided whilst loading and pressing wool.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-5.
2. **Teamwork:** relates to specific outcomes 1-5.
3. **Self-management:** relates to specific outcomes 1-5.
4. **Interpreting Information:** relates to specific outcomes 3-5.
5. **Communication:** relates to specific outcome 5.
6. **Inter-relatedness of Systems:** relates to specific outcomes 4 and 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. National classing standards.
2. Legislation referring to e.g. foreign matter, foreign fibres and symbols.
3. Physical properties of wool.
4. Components of wool.
5. Classing requirements.
6. Hygiene (Including shed hygiene and personal hygiene).
7. Safety and health aspects.
8. Contamination aspects.
9. Wet wool, paint stained and stained wool.
10. Basic sheep shearing procedures.
11. Shearing shed discipline.
12. Skills: Interpersonal and Communication.
13. Techniques: Picking up fleece, casting of fleece, skirting, divided components, test for textile strength and baling.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.6.5**ELECTIVE**

TITLE	:	PERFORM BASIC ROUTINE OPERATIONS IN A DEFINED HYDROPONIC CONTEXT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to perform basic routine operations in a defined hydroponic context under close supervision.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No previous learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Prepare a production area for crop establishment.
2. Establish a hydroponic crop.
3. Identify the basic differences i.e. hydroponic and conventional (soil) production.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Prepare a production area for crop establishment.

Range: Activities / tasks to be performed for preparation include but are not limited to sanitation of the production environment, i.e. cleaning, removing weeds, sterilizing the beds/gullies/bags, etc. Preparation would also entail the laying of plastic to gravel/media in gullies, filling of bags with media and placing them in the production area

Assessment criteria:

- 1.1 The cleanliness of the production environment is evaluated.
- 1.2 The ability to prepare the bags/beds with media is demonstrated.

2. Establish a hydroponic crop.

Range: Establishing the crop includes removing seedlings/cuttings from seedbeds/trays, transplanting the seedlings/cuttings, appropriate placement of the irrigation into the bags/beds. The fertilization includes but is not limited to spaghetti tubes and leader pipes for beds and drippers. Seedlings and cuttings = propapules.

Assessment criteria:

- 2.1 The ability to successfully remove propapules (without damaging the roots) is demonstrated.
- 2.2 The ability to transplant propapules into beds/bags at predetermined spacing is demonstrated.
- 2.3 The ability to appropriately place irrigation in bags/beds is demonstrated.

3. Identify the basic differences i.e. hydroponic and conventional (soil) production.

Range: Differences are limited to soil versus growth media, open air versus protective structures.

Assessment criteria:

- 3.1 The ability to distinguish between soil and an artificial growing media is demonstrated.
- 3.2 The ability to distinguish between protected and unprotected production environments is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-2.
2. **Teamwork:** relates to specific outcomes 1–3.
3. **Self-management:** relates to specific outcomes 1–3.
4. **Interpreting Information:** relates to specific outcomes 1–3.
5. **Communication:** relates to specific outcomes 1-3.
7. **Self-development:** relates to specific outcomes 1-3.
8. **Science and Technology:** relates to specific outcomes 1-3.
9. **The world as a set of related systems:** relates to specific outcomes 1-3.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic literacy and numeracy at NQF1

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.6.6**ELECTIVE**

TITLE	:	UNDERSTAND ORGANIC MARKET REQUIREMENTS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to understand the requirements of the organic marketplace.

Learners will gain specific knowledge and skills in organic production and will be able to operate in a agricultural production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No previous learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Be familiar with basic requirements of the local and organic markets.
- 2 Be aware of local market outlets.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Be familiar with basic requirements of the local and organic markets.

Range: Community members, Spaza Shops, farmers' markets, stores and municipal markets.

Assessment Criteria:

- 1.1 The differences in quality of products and the awareness of local preferences are understood.
- 1.2 The position of organic produce in the marketplace and the awareness of the comparative advantages of organic products are understood.

- 2 Be aware of local market outlets.

Range: Local Spaza Shops, farmers' markets, stores and municipal markets.

Assessment Criteria:

- 2.1 Local Spaza Shops, farmers' markets, stores and municipal markets are located.
- 2.2 Prices and quality of various outlets and products are compared.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Information interpretation:** relates to specific outcomes 1 – 2.
2. **Communication:** relates to specific outcomes 1 – 2.
3. **Inter-relatedness of systems:** relates to specific outcomes 1 – 2.
4. **Self-development:** relates to specific outcomes 1 – 2.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Understand the functioning of markets.
2. Understanding of basic organic production.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 1.6.7**ELECTIVE**

TITLE : IDENTIFY AND EXPLAIN PERMACULTURE PRINCIPLES

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL: 1

CREDIT : 8

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to demonstrate and recognise the basic concepts of permaculture principles that are applied to achieve the sustainable development of a landscape. S/he will start developing an understanding of the ecological principles that underpin this approach and will be able to contribute to the overall sustainability of the developed landscape.

In addition, the learner will be well positioned to extend their learning and practice into other areas of natural resource use and farming systems that are applying organic practices in general.

Learners will gain specific knowledge and skills in permaculture and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No previous learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify site elements and resources and list their inputs and outputs.
2. Perform routine tasks related to the use of biological and other available resources.
3. Recognise and describe ecological processes and cycles.
4. Identify sustainable living practices.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify site elements and resources and list their inputs and outputs.

Range: Site resources include, but are not limited to, soil, water, plants, animals, air (wind), and energy (including human energy).

Site elements refer to, but are not limited to, the components of a design, such as nurseries, water harvesting, orchards, aquaculture and other production areas. The site elements will differ from one context to another.

Productivity refers to the balance between inputs and outputs, i.e. the total yield of the site is considered in a holistic sense, rather than individual elements in isolation.

Assessment criteria:

- 1.1 Site elements are identified and described.
(Range: Site elements refer to, but are not limited to, the components of a design, such as nurseries, water harvesting, orchards, aquaculture and other production areas. The site elements will differ from one context to another.)
- 1.2 Site resources are identified and described.
- 1.3 Inputs and outputs for site resources are correctly listed.
- 1.4 Inputs and outputs for site elements are correctly listed.
- 1.5 Sources of water for use and storage are identified and described.
(Range Statement: Water sources should include rainwater harvesting on slopes and/or roofs, sinking water into the ground using mulch pits, swales, contours, and boreholes, as well as from taps.)
- 1.6 Sources of energy to cook food and heat water are identified and described.
(Range Statement: Energy sources should include but are not limited to, firewood, dung, the sun, the wind, and biogas.)

2. Perform routine tasks related to the use of biotic and abiotic resources under close supervision.

Range: Biotic resources refer to all living organisms. Abiotic resources refer to all aspects of the non-living environment and include, but are not limited to air, wind, sun, water, soil, and climate.

Assessment criteria:

- 2.1 A functional earthworm farm or compost heap is constructed.
- 2.2 The role of bees in a plant production environment is described.
- 2.3 An elementary, functional solar cooker or water-heating system is constructed.
- 2.4 The application of wind harvesting systems is explained.
- 2.5 The application of low-tech water harvesting systems is explained.
- 2.6 Elementary biological pest control methods are applied.
(Range: Biological pest control methods may include, but are not restricted to developing predator habitats, companion planting and the preparation of organic teas.)
- 2.7 Liquid nutrients are prepared according to specific instructions.
(Range: Liquid nutrients may include, but are not restricted to, liquid manure, compost and comfrey tea.)
- 2.8 Sources, and potential sources, of water pollution are identified.
- 2.9 A range of area-specific invasive plant species is identified.
(Range Statement: Invasive plant species refer to the list provided by the Department of Water Affairs and Forestry.)

3. Recognise and describe ecological processes and cycles.

Range: Ecological processes refer to energy flow and food webs, succession, and edge effects. Cycles refer to the mineral and water cycles.

Assessment criteria:

- 3.1 The nitrogen cycle is explained.
- 3.2 The oxygen cycle is explained.
- 3.3 Energy flow is explained.
- 3.4 The water cycle is explained.
- 3.5 Food webs are described.
- 3.6 Basic patterns are identified and explained.
- 3.7 Basic edge effects are identified and explained.
- 3.8 Basic global climatic patterns are identified.

4. Identify sustainable living practices.

Range: Sustainable living practices refer to the integration of social, economic, political and abstract components:

Social Components include but are not limited to: Innovative settlement patterns such as eco-villages; the use of appropriate technology (e.g. solar energy, biogas digesters, flow forms for water purification, ram pumps, and wind energy); the dissemination of knowledge, skills and information.

Economic components include, but are not limited to: Local Employment Trading Systems; the establishment of cooperative community markets; community-supported agriculture systems.

Political components include, but are not limited to: The development of cluster groups as forums for discussion, representation and innovation.

Abstract components include, but are not limited to: Timing and data - gathering and -dissemination, and

Assessment criteria:

- 4.1 Basic global economic trade systems in relation to the South African economy are identified.
- 4.2 The role that technology plays and its impact on the environment are described.
- 4.3 Unconventional settlement structures are identified.
(Range Statement: Settlement structures include, but are not restricted to, eco-villages.)
- 4.4 A range of appropriate technology applications are identified and explained.
- 4.5 Alternative building techniques are identified and explained.
- 4.6 The importance of grey water harvesting is explained.
- 4.7 The role of biogas use and harvesting in relation to sustainable living is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to Specific Outcome 2.
2. **Teamwork** relates to Specific Outcome 2.
3. **Self-organisation and management** relates to Specific Outcomes 1 – 4.
4. **Information evaluation** relates to Specific Outcomes 1, 2 & 4.
5. **Communication** relates to Specific Outcomes 1, 2 & 4.
6. **Use science and technology** relates to Specific Outcomes 2 & 4.
7. **Inter-relatedness of systems** relates to Specific Outcomes 1 - 4.
8. **Self-development** relates to Specific Outcomes 2 & 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Ecological cycles.
2. Permaculture principles.
3. The names and functions of commonly used useful plants in the permaculture context.
4. The characteristics and life cycles of some soil organisms.
5. The role of solar radiation in the planet's ecology and climate.

SUPPLEMENTARY INFORMATION

Permaculture – A Designer's Manual, Tagari Publications, and Introduction to Permaculture, Tagari Publications, are used as the foundational texts for Permaculture Design.

NOTES

END

LEVEL 1.6.8**ELECTIVE**

TITLE	:	APPLY BASIC PIG HUSBANDRY PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	1
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to carry out practical pig husbandry practices in the farrowing house, weaning house, growing house, boar/sow house and dry sow house. The practical aspects covered will give the learner knowledge of feeding, watering and the preparation of housing for pigs.

In addition they will be well positioned to extend their learning and practice into other areas of agriculture and specifically pig production.

Learners will gain specific knowledge and skills in pig husbandry and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 1: Practical animal feeding

NQF 1: Observation and handling of animals

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate the procedures to be followed in the preparation of the farrowing house.
 2. Demonstrate the procedures to be followed in the preparation of the sows for the farrowing house.
 3. Apply appropriate feeding practices.
 4. Demonstrate the ability to clean and disinfect pig housing.
 5. Ensure the observance of bio-security in the piggery.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate the procedures to be followed in the preparation of the farrowing house.

Assessment criteria:

- 1.1 The cleaning of roof, walls, floor and feeding equipment of a farrowing house is effectively done.
- 1.2 The appropriate disinfection procedures for the farrowing house are applied.
- 1.3 The walls of the farrowing house are painted with the appropriate painting material.
- 1.4 Appropriate bedding material is provided in the farrowing pen.
- 1.5 Adequate heating equipment is provided for the farrowing house.

2. Demonstrate the procedures to be followed in the preparation of the sows for the farrowing house.

Assessment criteria:

- 2.1 Prior to entry into the farrowing house sows are cleaned.
- 2.2 Sows are disinfected according to appropriate procedures before entering the farrowing house.
- 2.3 The underline of sows is checked for any malfunctioning teats and other deformities.

2.4 Inoculations that are relevant for sows prior to entering the farrowing house are carried out under supervision.

3. Apply appropriate feeding practices to different stages of pig production.

Assessment criteria:

3.1 The correct time and appropriate method of creep feeding piglets is applied in the farrowing house.

3.2 The flush feeding of pigs is demonstrated according to supervisory guidelines.

3.3 Correct feeding quantities are applied according to supervisory guidelines.

3.4 Potable water is provided to all pig housing.

4. Demonstrate the ability to clean and disinfect pig housing.

Range: Pig housing includes boar/sow house, dry sow house, growing house, weaning house.

Assessment criteria:

4.1 The roof, walls, floor and feeding equipment of the house are cleaned effectively.

4.2 The appropriate disinfection procedures for the house are applied.

4.3 The walls of the house are painted with the appropriate painting material.

4.4 Appropriate bedding material is provided in the house.

5. Ensure the observance of bio-security in the piggery.

Assessment criteria:

5.1 The normally accepted personal hygiene standard is observed in the piggery.

5.2 The effective maintenance of a foot dip to comply with bio-security guidelines is demonstrated.

5.3 Dead and diseased animals are removed from the piggery to prevent disease problems.

5.4 Waste material and slurry are removed from the piggery according to prescribed guidelines.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-5.
2. **Teamwork:** relates to specific outcomes 1-5.
3. **Self-management:** relates to specific outcomes 1-5.
4. **Interpreting information:** 3 and 5.
5. **Communication:** relates to specific outcomes 1-5.
6. **Inter-relatedness of Systems:** 1-5.
7. **Self-development:** relates to specific outcomes 1-5.
8. **Science and Technology:** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Prepare the farrowing house for farrowing.
2. Carry out creep feeding, flush feeding and correct feeding practices.
3. Provision of potable water to the pigs.
4. Clean and disinfect all pig housing facilities.
5. Basic bio-security practices carried out.
6. Basic handling of pigs including the movement, restraint and handling of pigs.
7. Basic communication skills to report observations.
8. Knowledge of all equipment to be used in all practices carried out.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.1.1**FUNDAMENTAL**

TITLE	:	MONITOR, COLLECT AND COLLATE AGRICULTURAL DATA
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to monitor, collect and collate data in a narrow range of contexts in the agricultural sector. In addition the learner will be able to recognise, interpret and report on basic deviations in routine collection processes.

In addition learners will be well positioned to extend their learning and practice into other areas of data collection and dissemination in the agricultural sector. Competent learners will understand the purpose behind data collection and be able to contribute to the general standards applied in the sector by contributing to accurate information gathering.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to information systems and technology.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-oriented approach to agriculture

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standards:

NQF 1: Collect Agricultural Data

NQF 1: Demonstrate an understanding of the basic concepts of sustainable farming systems

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Identify and collect the required data.
 - 2 Collate the collected data.
 - 3 Record collated data and create reports in the required format.
 - 4 Apply health and safety measures applicable to the collection method and equipment used.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and collect the required data.

Range: Data may include but is not limited to biological, physical and economical data such as pests, diseases, agro-chemical, crops, stock, and maintenance.

Assessment criteria:

- 1.1 Sources of information are identified.
- 1.2 Data is collected from a limited range of sources.
Range Statement: Sources of information may include various points of information or other people who are gathering data.
- 1.3 Data is collated accurately.

2. Collate the collected data.

Range: Processing may include, but is not restricted to: input into electronic devices, counting, weighing, or creating graphs.

Assessment criteria:

- 2.1 The appropriate method of collating data is identified.
- 2.2 All relevant data is identified.
- 2.3 Data is correctly counted or added.

3. Record collated data and create a report in the required format.

Assessment criteria:

- 3.1 The required reporting format is identified.
- 3.2 The report format is correctly completed.
- 3.3 Deviations and problems are identified and reported.

4. Apply health and safety measures applicable to the collection method and equipment used.

Assessment criteria:

- 4.1 The relevant health and safety standards relevant to the method of data collection are explained.

- 4.2 The relevant health and safety standards relevant to the method of data collection are applied.
- 4.3 The appropriate protective garments and equipment are used.
- 4.4 The appropriate hygiene measures are applied throughout the process of collection.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not, unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 - 4.
2. **Teamwork** relates to specific outcomes 1 - 4.
3. **Self-organisation and management** relates to specific outcomes 1 - 4.
4. **Information evaluation** relates to specific outcomes 1 - 4.
5. **Communication** relates to specific outcomes 1 - 4.
6. **Use science and technology** relates to specific outcomes 1 - 4.
7. **Inter-relatedness of systems** relates to specific outcomes 1 - 4.
8. **Self-development** relates to specific outcomes 1 - 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 The names and functions of various data collection tools and equipment.
- 2 The names and functions of the sources of the data.
- 3 The purpose of accurate data collection.
- 4 The procedures of different methods of data collection.
- 5 Elementary communication.
- 6 A basic knowledge of health and safety regulations.
- 7 Elementary teamwork.
- 8 Elementary supervisory skills.
- 9 Elementary health and safety techniques.
- 10 Different methods of recording data.
- 11 Different methods of presenting data.
- 12 The descriptions and properties of the source of the data being collected.
- 13 The description and properties of the data collection equipment.
- 14 Sensory cues related to the measurement of the data, the data collection equipment and the source of the data.
- 15 The purpose for learning about Information technology.
- 16 The purpose of the data being collected.
- 17 The correct procedures for collecting the data.

- 18 All relevant rules, laws and regulations related to the source of the data and the data itself.
- 19 The relationship between the data and information generated by it.
- 20 The specific Animal production or plant production or business practice or agricultural practice that the data collection procedure refers to.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.1.2**FUNDAMENTAL**

TITLE : RECOGNISE AND IDENTIFY THE BASIC FUNCTIONS OF THE ECOLOGICAL ENVIRONMENT

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 4

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner will be able to demonstrate an understanding of the basic functions of the environment by recognising patterns and processes, knowing local resources and basic sustainable agricultural processes using environmental indicators.

Competent learners will understand the environmental context of sustainable agricultural production.

LEARNING ASSUMED TO BE IN PLACE

It is expected of the learner attempting this unit standard to demonstrate competence against the unit standard:

“Demonstrate an understanding of the basic concepts of sustainable farming systems” (NQF 1) or equivalent.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Recognise patterns and processes of the environment and how they relate to the sustainable use of agricultural land.
- 2 Demonstrate an understanding of natural resources and recognise their limitations within the agricultural environment.
- 3 Demonstrate an understanding of sustainable agricultural principles.

- 4 Recognise environmental degradation indicators.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Recognise patterns and processes of the environment and how they relate to the sustainable utilisation of agricultural land.

Range: Patterns of the environment include rainfall, climate, dry cycles, original vegetation, seasons, movement patterns of animals, etc. Processes of the biophysical environment include the interaction and the relationship between food webs, human activities, soil, climate, water, plants, animals and solar energy

Assessment criteria:

- 1.1 Rainfall patterns and distribution are explained.
- 1.2 The broad distribution of the fauna and flora in South Africa in both the past and the present is explained, and the concept of ecosystems is described.
- 1.3 The relationship between climate, soil and indigenous vegetation is explained.
- 1.4 Methods of generating alternative energy are understood.

- 2 Demonstrate an understanding of natural resources and recognise their limitations within the agricultural environment.

Range: Natural resources include renewable and non-renewable, living and non-living resources.

Assessment criteria:

- 2.1 Natural resources and their uses are identified and explained.
- 2.2 Different waste resources are identified and explained.
(Range: waste resources include but are not limited to materials and by-products that can be reduced, reused or recycled.)
- 2.3 Different energy resources and alternative energy resources (renewable) are identified and different uses and applications are explained.

- 3 Demonstrate an understanding of sustainable agricultural principles.

Range: Basic sustainable agricultural principles relate to farming systems (with social, economic and environmental aspects), soil, climate, water and flora and fauna and the preservation thereof.

Assessment criteria:

- 3.1 Basic preparation and application of natural fertilizers are described.
- 3.2 Basic methods of natural pest control are described.
- 3.3 Basic soil conservation methods are described.
- 3.4 Basic crop rotation methods are described.

4. Recognise environmental degradation indicators.

Range: Soil, vegetation, plants and noxious weeds.

Assessment criteria:

- 4.1 Soil erosion is recognised.
- 4.2 Basic signs of land degradation are recognised.
- 4.3 Invasive species are identified.
- 4.4 Basic pollution symptoms are recognised.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

- 1 **Problem solving:** Relates to all specific outcomes.
- 2 **Self-organisation and management:** Relates to all specific outcomes.
- 3 **Information evaluation:** Relates to all specific outcomes.
- 4 **Communication:** Relates to specific outcome 4.
- 5 **Science and Technology:** Relates to specific outcome 5.
- 6 **The world as a set of related systems:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Patterns and processes of the environment.
- 2 Resource availability and limitations.
- 3 Basic sustainable agricultural principles.
- 4 Environmental indicators.
- 5 Basic soil types and their features i.e. clay, sand, loam and its distribution.
- 6 Basic weather patterns i.e. summer, winter, basic clouds and energy/ carbon/ hydrological/ oxygen cycles.
- 7 Basic water cycle and water management.
- 8 Basic veld types i.e. savanna, fynbos, forest, Karoo and links to weather patterns.
- 9 Basic ecosystems, their distribution and links to the rest of the environment i.e. wetlands, grasslands, mountains.
- 10 Needs for wild life corridors, their functions and possible areas for corridors.
- 11 Basic natural resources (water, soil, veld, energy, heat) their limitations and sustainable uses.
- 12 Use of basic waste as a resource i.e. types for erosion control, trench gardening.

- 13 Basic alternative energies i.e. wind, sun, gravity and some of their uses.
- 14 Basic biological pest control methods, identification and protection of predator insects, and where to access biological control agents.
- 15 Basic preparation and application of natural fertilisers.
- 16 Basic soil conservation and crop rotation methods.
- 17 Basic environmental indicators such as soil erosion, basic signs of land degradation.
- 18 Invasive species.
- 19 Pollution and pollution systems i.e. industry pollutants (ozone), farm pollutants i.e. dairies, etc.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.2.1**AGRI-BUSINESS**

TITLE	:	IDENTIFY AND RECOGNISE FACTORS INFLUENCING AGRICULTURAL ENTERPRISE SELECTION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

Qualifying learners are able to demonstrate an understanding of the principles and factors influencing agricultural enterprise selection. They will be well positioned to extend their learning and practice into other areas of agriculture, specifically crop production and animal production systems. The profession will benefit from this training by learners being equipped with adequate skills to have input into enterprise selection and production to improve productivity and performance.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to enterprise selection.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Knowledge and skills will be gained by farmers to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 1: Apply basic agricultural enterprise selection.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Name and recognise natural resources required for the selection of the relevant enterprise.
 2. Describe and recognise infrastructural requirements for the selection of the relevant enterprise.
 3. Identify and recognise stock required for the relevant enterprise.
 4. Recognise and describe production cycles within the relevant enterprise.
 5. Identify and recognise harvest practices within the relevant enterprise.
 6. Describe and recognise post harvest practices within relevant enterprise.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Name and recognise natural resources required for the selection of the relevant enterprise.

Range: Natural resources include soil, water, climate, vegetation and topography

Assessment criteria:

- 1.1 Soils and their potential are identified.
 - 1.2 Quality water must be identified and provided from a source.
 - 1.3 Climate conditions are recognised and described.
 - 1.4 Abnormal climatic conditions and risks are recognised and recorded.
 - 1.5 Vegetation type is qualified and recognised.
 - 1.6 The role of topography is understood.
-
2. Describe and recognise infrastructural requirements for the selection of the relevant enterprise.

Range: Infrastructural requirements include fencing, housing, water supply, electricity, animal handling facilities and access.

Assessment criteria:

- 2.1 Infrastructure required is identified and described for the relevant enterprise.
 - 2.2 The role and function of infrastructure is identified and recognised for the relevant enterprise.
 - 2.3 Abnormalities regarding infrastructure are recognised and described.
 - 2.4 The most suitable sites for erection of infrastructure are described.
-
3. Identify and recognise stock required for the relevant enterprise.

Range: All livestock and crops on the farm.

Assessment criteria:

- 3.1 Special characteristics within the enterprise are identified.
- 3.2 Different characteristics of various livestock and crops are described.
- 3.3 Basic needs of farm livestock and crops are recognised and described.
- 3.4 Suitable resources must be identified for the specific farm enterprise.

- 4. Recognise and describe production cycles within relevant enterprise.

Range: All enterprises on the farm or within a community.

Assessment criteria:

- 4.1 The production cycle must be recognised, monitored and observed.
- 4.2 Observations regarding the production cycle must be reported to the supervisor.
- 4.3 The necessary records must be kept relating to the enterprise on the farm.
- 4.4 Marketing aspects impacting on production are identified.

- 5. Identify and recognise harvest practices within relevant enterprise.

Range: All enterprises on the farm or within a community.

Assessment criteria:

- 5.1 The basic requirements for successful harvesting are described.
- 5.2 Harvest practices are described.
- 5.3 Good health and hygiene principles are applied.
- 5.4 Quality standards relevant to the product are applied.

- 6. Describe and recognise post harvest practices within relevant enterprise.

Range: All relevant livestock on the farm or within a community.

Assessment criteria:

- 6.1 Basic requirements for successful post harvesting practices are described.
- 6.2 Post harvest practices are described.
- 6.3 Good health and hygiene principles are applied.
- 6.4 Quality standards relevant to the product are applied.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Interpreting Information:** relates to specific outcomes 1 to 6.

2. **Self-development:** relates to specific outcomes 1 to 6.
3. **Use Science and Technology:** relates to specific outcomes 1 to 6.
4. **World as related system:** relates to specific outcomes 1 to 6.
5. **Problem solving:** relates to specific outcomes 1 to 6.
6. **World as a set of related systems:** relates to specific outcomes 1 to 6.
7. **Communication:** relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Soil and water sampling techniques.
2. Water provision and quality.
3. Climatic conditions.
4. Vegetation and topography.
5. Infrastructure.
6. Stock Needs.
7. Production cycles.
8. Harvesting practice within enterprise selection.
9. Communication skills.
10. Numeracy skills and keeping records.
11. Farming processes and procedures.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.2.2**AGRI-BUSINESS**

**TITLE : ILLUSTRATE AND UNDERSTAND THE
BASIC LAYOUT OF FINANCIAL
STATEMENTS**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 2

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to define and illustrate the gross margin statement, income statement, balance sheet and cash flow budget as well as the different cost aspects that one can find in a business.

In addition learners will be well positioned to extend their learning and practice into other areas of costing and basic financial statements or, to strive towards professional standards and practices at higher levels.

Competent learners will know if the business is making a profit or a loss, and how to generate basic but effective managerial information from it.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is expected of the learner attempting this unit standard to demonstrate competence against the following unit standard or equivalent:

NQF 1: Identify the need for capital and understand the need for the recording of the income and different costs in an agri-business.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Define and understand the gross margin statement and distinguish between direct and indirect costs, as well as fixed and variable costs.
 2. Define and understand the income statement.
 3. Define and understand the balance sheet.
 4. Define and understand the structure of a cash-flow budget and statement.
 5. Demonstrate an understanding of the legal responsibilities of an agri-business owner.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Define and understand the gross margin statement and distinguish between direct and indirect costs, as well as fixed and variable costs.

Range: All direct costs that forms part of the production costs not limited to material, labour, overheads, stock and production costs, direct and indirect cost. All income generated by the specific enterprise should be identified and quantified.

Assessment criteria:

- 1.1 The ability is demonstrated to explain and define fixed and variable costs.
- 1.2 The ability is demonstrated to identify and quantify the fixed and variable costs.
- 1.3 The ability is demonstrated to identify and explain the various income sources.
- 1.4 The ability is demonstrated to list and quantify the various income sources.
- 1.5 Material cost, labour cost and overhead costs are defined and explained.
- 1.6 All possible material costs, labour, direct and indirect costs for a specific agri-business are listed.
- 1.7 An understanding of the gross margin concept and its application within agriculture is demonstrated.
- 1.8 The ability to complete a template, show and calculate the production costs and gross margin is demonstrated.

2. Define and understand the income statement.

Range: The income statement refers to income, production costs, net farming income, foreign factor costs, farming profit/loss.

Assessment criteria:

- 2.1 An ability is demonstrated to understand, distinguish between and quantify all possible fixed and variable costs such as marketing, personnel and admin costs, as well as foreign factors costs.
- 2.2 The ability to provide inputs to an income statement, which reflects production costs, income, foreign cost and profits or losses, is demonstrated.
- 2.3 The ability to generate managerial information from the income statement is demonstrated.

3. Define and understand the balance sheet.

Range: Short term, medium term and long-term assets and liabilities and owner's equity

Assessment criteria:

- 3.1 An ability is demonstrated to identify and quantify the components of short-term assets.
- 3.2 An ability is demonstrated to identify and quantify the components of short-term liabilities.
- 3.3 An ability is demonstrated to identify and quantify the components of medium term assets.
- 3.4 An ability is demonstrated to identify and quantify the components of medium term liabilities.
- 3.5 An ability is demonstrated to identify and quantify the components of long-term assets.
- 3.6 An ability is demonstrated to identify and quantify the components of long-term liabilities.
- 3.7 An understanding of owner's equity and what it consists of is demonstrated.
- 3.8 The ability to complete a balance sheet when the template is given is demonstrated.

4. Define and understand the structure of a cash-flow budget and statement.

Range: This includes cash, credit, income, other income, costs, etc. over a period of twelve months.

Assessment criteria:

- 4.1 The ability to source various financial data for the cash-flow budget and statement is demonstrated.
- 4.2 The ability to fill in the template of a cash flow budget and/or statement is demonstrated.
- 4.3 An understanding of the need for a twelve-month budget is demonstrated.
- 4.4 An understanding of the various components of a cash flow budget and statement is demonstrated.
- 4.5 The ability to transfer the month-end balance to the next month's opening balance is demonstrated.
- 4.6 An understanding of the influence interest rates on the budget and statement is demonstrated.
- 4.7 The ability to interpret basic results of the budget and statement is demonstrated.
- 4.8 An understanding of how the cash-flow budget/statement links up with the income statement is demonstrated.

4.9 An understanding and ability to use the cash-flow budget in a cash-flow statement is demonstrated.

5. Demonstrate an understanding of the legal responsibilities of an agri-business owner.

Range: This includes but is not limited to tax, VAT, PAYE, workman's compensation, RSC, and skills levy payments.

Assessment criteria:

5.1 An understanding of the legal environment in which the agribusiness operate is demonstrated.

5.2 An understanding of what income tax is and why it should be incorporated within the planning process is demonstrated.

5.3 An understanding of what value-added tax is and why it should be incorporated within the planning process is demonstrated.

5.4 An understanding of what workman's compensation is and why it should be incorporated within the planning process is demonstrated.

5.5 An understanding of what skills levy payments is and why it should be incorporated within the planning process is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1,2 and4.
2. **Self-organisation and management** relates to specific outcomes 1-5.
3. **Information evaluation** relates to specific outcomes 1-5.
4. **Communication** relates to specific outcomes 1-5.
5. **Use science and technology** relates to specific outcomes 1-5.
6. **Inter-relatedness of systems** relates to specific outcomes 1-5.
7. **Self-development** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Gross margin analysis.
2. Production costs.
3. Income statement.
4. Balance sheet.
5. Cash flow budget and statement.
6. Statutory/legal requirements, rules and principles.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.2.3**AGRI-BUSINESS**

TITLE : **EXPLAIN PRINCIPLES OF HUMAN RESOURCES MANAGEMENT AND PRACTICES IN AGRICULTURE**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 2

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to describe and understand the principles of Human Resources Management as applied at workplace environment.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to human resources.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 1: Apply basic human resources management principles and practices applicable in an agricultural environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an awareness and basic understanding of the farm's Human Resources policy with specific reference to rules and procedures.
 2. Explain and identify labour legislation applicable at the work situation.
 3. Explain and interpret contracts and agreements applicable at the workplace.
 4. Explain and adhere to health and safety rules and practices.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an awareness and basic understanding of the farm's Human Resources policy with specific reference to rules and procedures.

Range: Human resources philosophy, policies, rules, procedures and disciplinary environment applicable at farm level

Assessment criteria:

- 1.1 An understanding of disciplinary rules and grievance procedures at farm level is demonstrated.
- 1.2 An understanding of the value of a human resource policy and that access to it is known is demonstrated.
- 1.3 The implication(s) of non-compliance of company rules and procedures are explained.

2. Explain and identify labour legislation applicable at the work situation.

Range: Labour legislation includes working hours, remuneration, safety, over-time, holidays, legal strikes etc.

Assessment criteria:

- 2.1 An understanding is demonstrated of labour legislation relevant and applicable at the workplace with specific reference to working hours, remuneration, safety, holidays, etc.
- 2.2 An understanding is demonstrated of the implication(s) of not complying with labour legislation.
- 2.3 An ability is demonstrated to explain Employment rights and responsibilities.

3. Explain and interpret contracts and agreements applicable at the workplace.

Range: Job descriptions, performance agreements, personnel evaluation, interview panels

Assessment criteria:

- 3.1 An understanding is demonstrated of the need for job descriptions and the contents of it.
 - 3.2 An understanding is demonstrated of the value of a contract – should be able to explain it and interpret it.
 - 3.3 An understanding is demonstrated of the need for performance agreements and the functioning of such a system.
 - 3.4 An understanding is demonstrated of the need for personnel evaluation and the evaluation process.
 - 3.5 An understanding and awareness of all other Agreements relevant to the work situation is demonstrated.
4. Explain and adhere to health and safety rules and practices.

Range: Health and safety rules and practices include but are not limited to compulsory statutory safety regulations as well as relevant company health and safety rules – protective clothing, handling of dangerous chemicals, adherence to safety procedures laid down by law and farm policy.

Assessment criteria:

- 4.1 An understanding of the need and value of Health and Safety rules and procedures is demonstrated.
- 4.2 An awareness of the location of safety equipment is demonstrated.
- 4.3 An awareness of the importance of the periodical checking of safety equipment is demonstrated.
- 4.4 Personal hygiene practices are identified, described and interpreted.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-4.
2. **Teamwork:** relates to specific outcomes 1-4.
3. **Self-management:** relates to specific outcomes 1-4.
4. **Interpreting Information:** relates to specific outcomes 1-4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Use Science and Technology:** relates to specific outcomes 1-4.
7. **The world as a set of related systems:** relates to specific outcomes 1-4.
8. **Self-development:** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Human Resource policy, principles and procedures.
2. Labour Laws.
3. Contractual agreements.
4. Job descriptions.

5. Personnel evaluation.
6. Performance agreements.
7. Occupational Health and Safety, and environmental regulations.
8. Personal hygiene.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.2.4**AGRI-BUSINESS**

TITLE	:	CONTROL INPUTS AND STOCK IN AGRIBUSINESS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to apply basic skills in record keeping, storage, contaminant management and associated legislation when controlling input and stock. In addition they will be well positioned to extend their learning and practice into other areas of agribusiness.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to inputs, resources and sourcing.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. The knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture will be gained by farmers.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standard or equivalent:

NQF 1: Handle inputs and stock in agribusiness.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Plan to receive inputs into a store at the appropriate time.
 2. Keep accurate records and manage stock.
 3. Identify legislation regarding different inputs.
 4. Observe safety regulations.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Plan to receive inputs into a store at the appropriate time.

Range: This may include cleaning and disinfecting, identification of appropriate space for storage and prevention of contamination (direct and cross contamination).

Assessment criteria:

- 1.1 Appropriate cleaning materials for specific items are identified.
(Range: Specific cleaning problems include but are not limited to contamination by fats, solvents, dust, and dyes).
- 1.2 Disinfection techniques for storerooms are demonstrated.
(Range: Techniques include but are not limited to fumigation, spraying, dusting, and fogging).
- 1.3 Basic procedures for classification of stock are explained.
- 1.4 Appropriate cleaning methods for various situations are selected.
(Range: appropriate cleaning methods include but are not limited to hosing, scrubbing, sweeping, dusting, etc.)
- 1.5 The appropriate use of storage space is demonstrated.
- 1.6 The ability to identify possible sources of contamination is demonstrated.

2. Keep accurate records and manage stock.

Range: This includes basic inventory taking, issuing and receiving of stock, identification of re-order level, reporting on stock levels and re-order prompting.

Assessment criteria:

- 2.1 Requisition forms are filled in and interpreted.
- 2.2 Steps to be taken when receiving stock are explained.
(Range: steps to be taken at stock reception include but are not limited to labour, loading, storage, classification, etc.)
- 2.3 Re-order levels are identified.
- 2.4 Stock levels are reported on through appropriate procedures.
- 2.5 Stock is prevented from running low.

3. Identify legislation regarding different inputs.

Range: Includes but is not limited to interpretation of rules and regulations regarding handling and storage of inputs. Explanation of contracts, penalties and obligations regarding input supply.

Assessment criteria:

- 3.1 The rules and regulations pertaining to inputs are explained.
 - 1.1 The basic principles for classification of chemicals are explained.
 - 1.2 Contracts and penalties applicable in a breach of contract are explained.

4. Observe safety regulations

Range: Includes but is not limited to interpretation of the Occupational Health and Safety Act, shelf life / expiry and handle stock appropriately to avoid contaminations of the product and/or by humans, animals or the environment.

Assessment criteria:

- 4.1 The Occupational Health and Safety Act as it applies to staff and inputs is explained
- 4.2 The common labelling techniques used in input handling are illustrated.
- 4.3 The reason to adhere to different storage methods is explained.
- 4.4 Storage methods for powders, granules and liquids are distinguished.
- 4.5 The use of emergency facilities in the event of spills, contamination or exposure is identified and demonstrated.
(Range: Emergency facilities include but are not limited to First Aid facilities, showers, water, containment structures, protective clothing, emergency telephone numbers and support structures.)

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 4.
2. **Teamwork:** relates to specific outcomes 1 to 4.
3. **Self-management:** relates to specific outcomes 1 to 4.
4. **Interpreting Information:** relates to specific outcomes 1 to 4.
5. **Communication:** relates to specific outcomes 1 to 4.
6. **Use Science and Technology:** relates to specific outcomes 1 to 4.
7. **The world as a set of related systems:** relates to specific outcomes 1 to 4.
8. **Self-development:** relates to specific outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and functions of attributes of stock control systems.
2. The names and attributes of the items kept in stock.
3. Sensory cues related to the management of stock, stock levels and emergency situations.
4. Pictograms.
5. The purpose of managing stock.
6. Categories for various stock items and the compatibility or otherwise of various stock items.
7. All relevant legislations related to stock management and chemicals.
8. Emergency procedure management such as First Aid and AVCASA.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.2.5**AGRI-BUSINESS**

TITLE	:	APPLY MARKETING PRINCIPLES IN AGRICULTURE
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to apply knowledge of the marketing principles within agriculture for a specific product or service. Specific knowledge on the value of marketing research and the marketing mix will enable learners to understand the marketing process.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to marketing.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture will be gained by farmers.

Competent learners will be fully conversant with agricultural business practices and aspects of financial analysis as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 1: Demonstrate an understanding of the importance of marketing.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand the value of marketing research.
 2. Apply the marketing mix (product, promotion, place, price and people) to a selected enterprise.
 3. Take limited and shared responsibility for the marketing budget.
 4. Have an awareness and understanding of the importance of effective distribution channels for a specific agricultural commodity.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand the value of marketing research.

Range: The research process, budget allocation, personnel allocation, and time allocation should receive the necessary attention.

Assessment criteria:

- 1.1 An understanding of the research process with specific emphasis on the value of managerial information is demonstrated.
- 1.2 An awareness of the allocation of funds to the marketing research process is demonstrated.
- 1.3 An ability to allocate time frames to selected research outcomes is demonstrated.
- 1.4 An understanding of the need for access to people with specific marketing skills is demonstrated.
- 1.5 An ability to identify target groups is demonstrated.
- 1.6 An ability to apply generated managerial information within production processes is demonstrated.

2. Apply the marketing mix (product, promotion, place, price and people) to a selected enterprise.

Range: Application of the marketing mix's components – product and packaging, price, place, promotion and people.

Assessment criteria:

- 2.1 An understanding of the market requirements for a specific product on the farm in terms of its appearance (size[s], packaging, etc) is demonstrated.
- 2.2 An understanding of the market requirements for a specific product on the farm is demonstrated in terms of the distribution channels needed to get the product to the markets.
- 2.3 An understanding of the market requirements for a specific product on the farm is demonstrated in terms of its pricing in relation to the various size(s) and packaging formats offered.
- 2.4 The ability to differentiate between the various promotional actions available to the farm for each product format is demonstrated.
- 2.5 An understanding of need for productive and motivated human resources within the production and marketing processes is demonstrated.

3. Take limited and shared responsibility for the marketing budget.

Range: Short term, medium term and long term – personnel, outsourcing, shows, media

Assessment criteria:

- 3.1 An understanding for the need of a marketing budget is demonstrated.
- 3.2 An understanding of the components of a marketing budget is demonstrated.
- 3.3 The ability to differentiate between short, medium and long term budget needs is demonstrated.
- 3.4 The ability to have a shared responsibility for the limited monitoring of the marketing budget is demonstrated.
- 3.5 An understanding of the importance of the adherence to the needs of market place and the identified target groups is demonstrated.

4. Have an awareness and understanding of the importance of effective distribution channels for a specific agricultural commodity.

Range: Allocation of budget, people, transport modes.

Assessment criteria:

- 4.1 Co-participation in selecting the best distribution channel for a specific agricultural commodity taking alternative target markets and distribution channels into account is demonstrated.
- 4.2 An understanding of the need for the allocation of a budget for each distribution channel and the monitoring thereof is demonstrated.
- 4.3 An understanding for the need for monitoring the productivity of the resources involved with the transport of the specific agricultural commodity to its market place is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1, 2 and 4.
2. **Teamwork:** relates to specific outcomes 1-4.
3. **Self-management:** relates to specific outcomes 1-4.
4. **Interpreting Information:** relates to specific outcomes 2 and 4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Use Science and Technology:** relates to specific outcomes 1, 3 and 4.
7. **The world as a set of related systems:** relates to specific outcome 2.
8. **Self-development:** relates to specific outcomes 1 – 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The application of the marketing mix to a selected agricultural commodity.
2. The identification of target groups.
3. The monitoring of budgets allocated to the marketing process.
4. Awareness of the value of monitoring time frames and budgets of marketing components.
5. The importance of productivity within marketing channels.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.2.6**AGRI-BUSINESS**

TITLE : DEFINE AND UNDERSTAND PRODUCTION SYSTEMS AND PRODUCTION MANAGEMENT

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 2

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to understand basic production systems, the basic managerial tasks, additional management tasks and the management objective in the agri-business environment. In addition they will be well positioned to extend their learning and practice into other areas of business and agriculture, benefiting agriculture by placing managers that are trained to understand that agricultural production is a business.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to production/conversion.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture will be gained by farmers.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 1: Define production and understand the basic activities of production conversion in the agri-business process.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Understand production systems in an agri-business environment.
- 2 Understand and define the basic managerial tasks.
- 3 Understand and define the additional production management tasks.
- 4 Understand the process of setting goals and objectives related to systems within an agricultural business

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand production system in an agri-business environment.

Range: Production systems refer to but are not limited to inputs applied, transformation processes and desired outputs.

Assessment criteria:

- 1.1 The interaction with the market is described.
(Range: Market refers to but is not limited to input market, output market)
(Range: Interaction refers to the activities that take place between input markets, production systems and output markets.)
 - 1.2 An understanding of the limited nature of natural resources is demonstrated.
(Range: Natural resources refer to but are not limited to soil, land, and water).
 - 1.3 The reciprocal interaction between agricultural processes and environmental factors is described.
(Range: What effect does the environment have on agricultural practices – positive / negative (e.g. Production limitations, environmental legislations)
(Range: What effect agricultural practices have on the environment – positive / negative (pollution, erosion).
 - 1.4 The concept of optimal usage of resources and optimisation of outputs is understood.
(Range: Resources refer to but are not restricted to capital, land, water, facilities, human resources, information, and raw materials, etc.)
(Range: Optimisation refers to the best usage of inputs and resources to deliver the best possible level of output).
(Range: Best includes optimisation in terms of quality and / or quantity).
2. Understand and define the basic managerial tasks.

Range: Basic management tasks refer to but are not limited to planning, leading, organising, implementation and control.

Assessment criteria:

- 2.1 The importance of planning is defined and explained.

- 2.2 The various components in the planning process are described.
- 2.3 The essence of scheduling is defined and understood.
(Range: The essence of scheduling includes but is not limited to the purpose of scheduling and the various steps that have to be followed).
- 2.4 The essence of organising is defined and explained.
(Range: The essence of organising includes but is not limited to the appropriate allocation of human resources).
- 2.5 The essence of implementation is defined and explained.
(Range: The essence of implementation includes but is not limited to the creation of infrastructure to perform the steps that have to be followed with certain activities).
- 2.6 The essence of leadership is defined and explained.
(Range: The essence of leadership includes but is not limited to characteristics of good leaders, development of leadership abilities, etc.)
- 2.7 The concept of control, feedback, adaptation and correction is defined and explained.

3 Understand and define the additional production management tasks.

Range: Additional basic managerial tasks refer to but are not limited to decision making, communication, motivation, coordination, delegation, discipline, and human resource management.

Assessment criteria:

- 3.1 The purpose and various steps involved in the decision-making process are defined and explained.
 - 3.2 An understanding of the importance of good communication by exhibiting good communication skills is demonstrated.
(Range: Communication skills include but are not limited to listening, comprehensive reading, writing, verbal skills and the processing of the message).
 - 3.3 The essence of motivation is defined and explained.
 - 3.4 The essence of coordination is defined and explained.
 - 3.5 The essence of delegation is defined and explained.
 - 3.6 The essence of discipline is defined and explained.
 - 3.7 A basic understanding of human resource management is demonstrated.
(Range Human resource management include but is not limited to identification of skills required, number of labourers required, salary payments, personnel development, etc.)
4. Understand the process of setting goals and objectives related to systems within an agricultural business

Assessment criteria:

- 4.1 An understanding of the concept of business goal setting is demonstrated.
- 4.2 Various mechanisms and processes that enable goals to be set are discussed.
(Range: Mechanisms include but are not limited to the components of business plans such as SWOT analyses, (micro-, meso- and macro-) environmental analyses, budgets, etc.)

- 4.3 A basic knowledge about the parameters and structure of various agricultural production systems is demonstrated.
 - 4.4 The ability to set and discuss basic theoretical goals using a variety of techniques for a variety of basic agricultural production systems is demonstrated.
 - 4.5 The ability to integrate basic goals for agricultural systems within an agricultural enterprise is demonstrated.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Teamwork** relates to specific outcomes 1-4.
3. **Self-organisation and management** relates to specific outcomes 1-4.
4. **Communication** relates to specific outcomes 1-4.
5. **Self-development** relates to specific outcomes 1-4.
6. **The World as a set** relates to specific outcomes 1-4.
7. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Purpose of goals and objectives.
2. Aspects of the managerial tasks.
3. The structure of various agricultural production systems.
4. Basic presentation skills.
5. The basic components of managerial skills.
6. The setting of goals and objectives within an agricultural production set-up.
7. The purpose of learning about agricultural production and conversion systems.
8. The purpose of learning about management.
9. Understanding systems.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 2.3.1**AGRICULTURAL PRACTICES**

TITLE : APPLY CROP PROTECTION AND ANIMAL HEALTH PRODUCTS EFFECTIVELY AND RESPONSIBLY

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 4

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A person achieving this unit standard will be able to apply agrochemical products in a safe, effective and responsible manner with consideration to the environment. Furthermore, the person will be able to deal with emergencies related to the use of agrochemicals.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of agro-chemicals in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

The learner should be competent in literacy and numeracy at ABET level 4 or the equivalent:

NQF 1: Recognise pests and diseases and weeds on crops.

NQF 2: Store and control agrochemical products effectively and responsibly

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Implement a pre-application plan.
 2. Mix correct pest control products at correct dose rate.
 3. Apply pest control product to produce/crop or farm animals.
 4. Take the necessary safety and health precautions whilst applying pest control products.
 5. Apply post-application procedures.
 6. Monitor and report on the process, problems and unusual occurrences to the supervisor.
 7. Deal appropriately and effectively with emergencies.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Implement a pre-application plan.

Range: Pre-application plan includes but is not limited to product, equipment, protective gear, emergency equipment, facilities, and climate conditions.

Assessment criteria:

- 1.1 Product is identified and available.
- 1.2 Product expiry date is checked.
- 1.3 Equipment and safety equipment is checked for good working condition and is available and prepared for use.
- 1.4 Protective gear is available and in good working condition.
- 1.5 Contact detail of emergency services is available.
- 1.6 Animal handling facilities are prepared.

- 2 Mix correct pest control products at correct dose rate.

Range: Pest control products include but are not limited to crop, produce and animals.

Assessment criteria:

- 2.1 Colour codes, symbols and pictograms are interpreted correctly.
- 2.2 Product is correctly mixed according to products instructions.
- 2.3 Correct mixing procedure is applied.
- 2.4 Correct and sufficient mixing apparatus is available and used.
- 2.5 Correct storing apparatus is available and used.

2.6 Correct and sufficient cleaning/sterilisation apparatus is available and used.

3 Apply pest control product to crop or farm animals.

Assessment criteria:

3.1 As allowed by weather conditions.
(Range: Weather conditions include but are not limited to temperature, moist, wind drift).

3.2 Correct calibration parameters are adhered to.

3.3 Application methods are according to product instructions.

3.4 Protective gear is used correctly.

4 Take the necessary safety and health precautions whilst applying pest control products.

Range: Protecting self and co-workers; protecting non-targeted organisms; protecting the environment.

Assessment criteria:

4.1 A full set of protective clothing/gear is worn correctly.

4.2 Protective clothing/gear is in good working condition and state of repairs.

4.3 Correct utilisation of protective clothing/gear is applied.

4.4 No smoking, drinking, eating or under the influence of drugs takes place.

4.5 Product is stored correctly.

4.6 Waste and empty containers are disposed of correctly.

4.7 Soil and water contamination is avoided.

4.8 Application occurs under correct climate conditions.

4.9 Non-authorized workers are prevented from coming into contact with chemicals.

4.10 Rest of the worker community is informed of activity.

4.11 Designated areas are used for mixing.

4.12 Product is applied to targeted organisms only.

5 Apply post-application procedures.

Assessment criteria:

5.1 Apparatus is cleaned thoroughly.

5.2 Waste products and empty containers are collected, cleaned and discarded.

5.3 Empty containers are not used for other purposes.

5.4 Protective gear is cleaned, maintained and stored correctly.

5.5 Personal hygiene is applied.

6 Monitor and report on the process, problems and unusual occurrences to the supervisor.

Range: Verbally or in writing.

Assessment criteria:

- 6.1 Application process is monitored.
- 6.2 Problems and unusual occurrences are reported to the supervisor.

7 Deal appropriately and effectively with emergencies.

Range: Emergencies include but are not limited to chemical spills, human and animal poisoning and environmental contamination.

Assessment criteria:

- 7.1 Minor spills are contained, absorbed, collected and disposed of.
- 7.2 In the case of human poisoning a medical doctor is contacted immediately.
- 7.3 Supervisor is informed and requested to contact poison information centre to assess situation and advice on next step.
- 7.4 Incident is reported to the supervisor.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1,2 and 6.
2. **Self-organisation and management** relates to specific outcomes 1-7.
3. **Information evaluation** relates to specific outcomes 1,2 and 4.
4. **Communication** relates to specific outcomes 1,2 and 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Interpretation of pictograms, colour coding and symbols.
2. Legal implications of misuse/ abuse i.e. off-label use.
3. Potential hazards associated with agrochemicals.
4. Cleaning and maintenance of equipment.
5. General symptoms of poisoning.
6. Impact of product on the environment, humans and other organisms.
7. Basic storage principles and requirements.
8. Principles and methods of mixing.
9. Empty container and waste disposal.
10. Emergency procedures.
11. Legislation and Codes of Practice.

12. First aid.
13. Hygiene.
14. Contamination.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.3.2**AGRICULTURAL PRACTICES**

TITLE	:	UTILISE AND PERFORM MINOR REPAIR AND MAINTENANCE TASKS ON IMPLEMENTS, EQUIPMENT AND INFRASTRUCTURE
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to select basic equipment and implements that are appropriate to a combination of activities within a single agricultural process. S/he will be able to operate in a safe and responsible manner.

In addition learners will be well positioned to extend their learning and practice into other areas of agriculture or to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural regulations and aspects of safety to ensure the application of quality practices and thus strengthen agricultural practices in general.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal, plant and mixed farming sub fields. This unit standard focuses on the application of equipment, technology, implements and infrastructure in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. A culture of maintenance and care will be instilled for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standard, or equivalent.

NQF 1: Select, care for and use hand tools and basic equipment and infrastructure;

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.
2. Identify malfunctioning tools and equipment and perform minor repairs related to the use of equipment in an agricultural environment
3. Maintain and store tools, implements, equipment and/or machinery according to specifications.
4. Adhere to and understand the necessary safety measures in the use of agricultural equipment and implements.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.

Range: Agricultural process refers to the application of a range of tasks that form a specific function. For example, it may refer to the erection of a fence, the building of contours in a field, the milking of cows or the ploughing of a field. The tools, implements and equipment may include any of the following: hand tools, power tools, hand operated machinery, tractors, vehicles, and graders, as determined by the context in which the learner is working.

Assessment criteria:

- 1.1 The appropriate tools, implements and/or equipment are selected.
 - 1.2 The reasons for the selection of tools, implements and/or equipment are given.
 - 1.3 Possible combinations of tools, implements and/or equipment to execute a specific task are explained.
2. Monitor the good working order and perform minor repairs to the use of tools, implements and/or equipment.

Range: The good working order of tools, equipment and/or implements refers to the efficiency and optimum operating standards. Minor repairs may include the cleaning, sharpening or replacement of appropriate components to restore good working order.

Assessment criteria:

- 2.1 The malfunction of tools, implements and/or equipment is recognised.
 - 2.2 The cause of the malfunction is correctly identified.
 - 2.3 The appropriate action to prevent further damage (e.g. switching off a machine) is taken.
 - 2.4 The appropriate action to restore good working order is identified.
 - 2.5 Tools, equipment and/or implements are used correctly.
 - 2.6 Measures to prevent damage to tools, equipment and/or implements are explained.
 - 2.7 Repair and maintenance requirements are reported to the appropriate person.
3. Maintain and store tools, implements, equipment and/or machinery according to specifications.

Range: Specifications refer to the manufacturer's recommendations as well as the maintenance policy of the work place. Maintenance can refer to basic infrastructure (pipes) as well as machinery and vehicles.

Assessment criteria:

- 3.1 Tools, implements and equipment are stored according to specifications.
 - 3.2 The purpose of a maintenance schedule is described.
 - 3.3 The requirements for applying a maintenance schedule are identified.
4. Explain and apply the necessary safety measures in the use of agricultural tools, equipment and/or implements

Range: Safety refers to the application of measures referred to in the National Occupation and Safety Act (NOSA).

Assessment criteria:

- 4.1 Tools, implements and/or equipment are used safely.
- 4.2 The safety procedures applicable to the use and handling of fuel, agro-chemicals, equipment and implements are described.
- 4.3 The safe use of machinery is described. The contents of the NOSA Act are summarised.
- 4.4 The appropriate protective clothing required for the safe use of equipment are selected and used.
- 4.5 The safe use of machinery is described
- 4.6 The contents of the NOSA Act are summarized
- 4.7 The appropriate protective clothing required for the safe use of equipment are selected and used.

ACCREDITATION PROCES

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools

may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1, 2 & 4.
2. **Teamwork** relates to specific outcomes 1 & 4.
3. **Self-organisation and management** relates to specific outcomes 1-4.
4. **Information evaluation** relates to specific outcomes 1 - 2.
5. **Communication** relates to specific outcomes 1, 2 & 5.
6. **Use science and technology** relates to specific outcomes 1 – 4.
7. **Inter-relatedness of systems** relates to specific outcomes 1 & 4.
8. **Self-development** relates to specific outcome 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The safe handling of tools and equipment.
2. The basic contents of the NOHSA Act as it relates to safety precautions.
3. How the relevant tools, equipment and machinery work in order to perform repairs.
4. The purpose of learning and understanding equipment technology.
5. Sensory cues related to the safety and maintenance of tools, systems and equipment.
6. All relevant legislation pertaining to the handling and operation of tools.
7. All relevant procedures related to the handling and maintenance of tools.
8. All relevant nomenclature related to tools and technology.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.3.3**AGRICULTURAL PRACTICES**

TITLE	:	MONITOR WATER QUALITY
SAQA	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	3
FIELD	:	AGRICULTURE AND CONSERVATION
SUB-FIELD	:	PRIMARY AGRICULTURE
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to demonstrate an understanding of the importance of water quality to agriculture and to monitor and maintain water quality using established procedures. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and water management.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. The application of maintaining water quality practices in primary agriculture is focussed on in this unit standard.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. A culture of maintenance and care will be instilled for both the environment as well as towards farming infrastructure and operations by this unit standard.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standard, or equivalent:
NQF1: Maintain basic water quality

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of water quality management.
 2. Demonstrate an understanding of the importance of water to agriculture
 3. Demonstrate an ability to monitor and perform basic water quality tests and analyses.
 4. Demonstrate an ability to perform and understand maintenance tasks on certain operational technical systems related to water quality.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of water quality management.

Range: Quality factors for water include but are not limited to temperature, dissolved gasses such as oxygen and carbon dioxide, COD, water insoluble solids and dissolved minerals and organic load.

Assessment criteria:

- 1.1 An understanding is demonstrated of the effects of certain physical quality factors, and it is related to a relevant agricultural product species.
 - 1.2 A basic understanding of the effects of certain chemical quality factors is demonstrated and it is related to a relevant agricultural product species.
 - 1.3 Physical and chemical knowledge regarding water quality attributes is demonstrated.
2. Demonstrate an understanding of the importance of water quality to agriculture.

Assessment criteria:

- 2.1 The importance of water quality on plants and animals in agriculture is demonstrated.
(Range: Agricultural plants and animals include but are not limited to mammals, insects, birds, reptiles, amphibians, crustaceans, and mollusks, and crop plants).
 - 2.2 An understanding of processes implemented to improve water quality is demonstrated.
 - 2.3 The ability to sample and monitor water quality factors are demonstrated.
(Range: Quality factors for water include but are not limited to temperature, dissolved gasses such as oxygen and carbon dioxide, COD, water insoluble solids and dissolved minerals and organic load.)
3. Demonstrate an ability to monitor and perform basic water quality tests and analyses.

Range: Quality maintenance tasks including water aeration, inlet and outlet screening, inlet and outlet level and flow control, degassing and filtration.

Assessment criteria:

- 3.1 The ability to monitor and sample water sources is demonstrated and it is prepared for analysis.
 - 3.2 The ability to perform simple water quality tests to determine water quality is demonstrated.
 - 3.3 The ability to report meaningfully on water quality tests is demonstrated.
-
4. Demonstrate an ability to perform and understand maintenance tasks on certain operational technical systems related to water quality.

Assessment criteria:

- 4.1 The ability to perform maintenance on water quality control systems is demonstrated.
- 4.2 The ability to manage chemical and physical requisites related to water quality control systems is demonstrated.
- 4.3 The ability to report meaningfully on water quality systems' maintenance is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Team Work:** Relates to specific outcomes 2, 3 and 4.
2. **Self Management:** Relates to all specific outcomes.
3. **Communication:** Relates to all specific outcomes.
4. **Problem solving:** Relates to specific outcomes 3 and 4.
5. **Interpreting information:** Relates to specific outcomes 3 and 4.
6. **Science and technology:** Relates to all specific outcomes.
7. **Related systems:** Relates to all specific outcomes.
8. **Self development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and functions of water quality maintenance systems and components.
2. The names and attributes of water quality factors.

3. Sensory cues related to water quality.
4. The purpose of understanding the need for water quality knowledge.
5. Procedures related to the maintenance and testing of water quality.
6. Rules and regulations related to water.
7. Basic report writing skills.

SUPPLEMENTARY INFORMATION

NOTES

Certain plant species grow in water, but water is needed by all plant and animal life for life. All the land and aquatic animal organisms' bodily functions are performed in water. Because water is totally depended on to breathe, feed and grow, excrete wastes, maintain a salt balance, and reproduce, understanding the physical and chemical qualities of water is critical to successful aquaculture. To a great extent the success or failure of an agricultural operation is determined by water quality.

END

LEVEL 2.3.4**AGRICULTURAL PRACTICES**

TITLE	:	APPLY SUSTAINABLE FARMING PRACTICES TO CONSERVE THE ECOLOGICAL ENVIRONMENT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to explain the importance of maintaining and increasing of natural resources. Furthermore, the learner will be able to incorporate this understanding into existing farming activities by applying basic practices to conserve the environment, including natural resources.

Competent learners will be familiar with the most important agricultural regulations and aspects of conservation as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. The application of natural resource management in primary agriculture is focussed on in this unit standard.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. A culture of maintenance and care will be instilled for both the environment as well as towards farming infrastructure and operations by this unit standard.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is expected of the learner attempting this unit standard to demonstrate competence against the unit standard or its equivalent:

“Understand how sustainable farming systems conserve natural resources, NQF 1”.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Demonstrate an understanding of natural resources and recognise how sound management contributes towards sustainable farming systems.
- 2 Eradicate alien plant species and noxious weeds.
- 3 Prevent the spread of veld fires by making firebreaks and/or fireguards on the farm.
- 4 Recognise harmful and useful fauna and flora and their purpose and/or effect on the farm.
- 5 Recognise eroded areas and potential soil erosion and carry out minor control measures.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Demonstrate an understanding of natural resources and recognise how sound management contributes towards sustainable farming systems.

Range: Natural resources include renewable and non-renewable resources, living and non-living resources.

Assessment criteria:

- 1.1 Local natural resources and their uses are identified and explained.
- 1.2 Different waste resources are identified and their uses explained.
- 1.3 (Range: waste resources include materials and by-products that can be reduced, reused or recycled).
- 1.4 Different energy resources and alternative energy resources (renewable) are identified and different uses and applications are explained.

- 2 Eradicate alien plant species and noxious weeds.

Range: As outlined by the Department of Agriculture.

Assessment criteria:

- 2.1 Alien plant species are correctly identified.
- 2.2 Methods of clearing are correctly applied (first clear least invaded areas, follow up and maintain; then expand into intensively infested areas).
- 2.3 Cleared plant material is sorted and disposed of or re-used as mulch, compost, etc. as appropriate.

- 3 Prevent the spread of veld fires by making firebreaks and/or fireguards on the farm.

Range: Fireguards include fire resistant plants, water and stones.

Assessment criteria:

- 3.1 Available material or plants are used as and where appropriate.
 - 3.2 Vegetation that might spread fire is cleared.
 - 3.3 Stones are packed to form a proper barrier.
4. Recognise harmful and useful fauna and flora and their purpose and/or effect on the farm.

Range: Fauna and flora include animals, micro-organisms, insects, plants including alien species common to the area.

Assessment criteria:

- 4.1 Animals, micro-organisms, insects, plants and alien species common to the area are identified and categorised as useful/harmful.
 - 4.2 Their purpose/effect on the activities of the farm is explained.
 - 4.3 Ways to create a healthy environment and to attract useful animals/plants and reduce or repel harmful animals/plants are explained.
 - 4.4 The components of a food chain are explained.
5. Recognise eroded areas and potential soil erosion and carry out minor control measures.

Range: Control measures include but are not limited to gabions, mulch, plant and vegetation material, etc.

Assessment criteria:

- 5.1 Gullies and areas where water runs regularly are recognised and reported.
- 5.2 Appropriate control measures are suggested.
- 5.3 Mulch is used to cover soil for water and soil conservation
- 5.4 Runoff is reduced and the soil's capacity to hold water is improved.
- 5.5 The ability to carry out repairs according to required specifications is demonstrated.

(Range: Tasks may include donga rehabilitation, contour and road repairs.)

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving** relates to specific outcomes 1 to 6.
2. **Teamwork** relates to specific outcomes 1 to 6.
3. **Self-management** relates to specific outcomes 1 to 6.
4. **Interpreting Information** relates to specific outcomes 1 to 6.

5. **Communication** relates to specific outcome 6
6. **Use Science and Technology** relates to specific outcomes 1 to 6.
7. **The world as a set of related systems** relates to specific outcomes 1, 2, 5 and 6
8. **Self-development** relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Patterns and processes of the environment.
2. Resource availability and limitations.
3. Basic sustainable agricultural principles.
4. Environmental indicators.
5. Basic soil types and its features i.e. clay, sand, loam and its distribution.
6. Basic weather patterns i.e. summer, winter, basic clouds and energy/ carbon/ hydrological/ oxygen cycles.
7. Basic water cycle and water management.
8. Basic veld types i.e. savannah, fynbos, forest, Karoo and links to weather patterns.
9. Basic ecosystems, their distribution and links to the rest of the environment i.e. vlei, grasslands, mountains.
10. Needs for wild life corridors, their functions and possible areas for corridors.
11. Basic natural resources (water, soil, veld, energy, heat), their limitations and sustainable uses.
12. Utilisation of basic waste as a resource i.e. types for erosion control, trench gardening.
13. Basic alternative energies i.e. wind, sun, gravity and some of their uses.
14. Basic biological pest control methods, identification and protection of predator insects, and where to access biological control agents.
15. Basic preparation and application of natural fertilisers.
16. Basic soil conservation and crop rotation methods.
17. Basic environmental indicators such as soil erosion, basic signs of land degradation.
18. Invasive species.
19. Pollution and pollution systems i.e. industry pollutants (ozone), farm pollutants i.e. dairies, etc.
20. Working safely with a range of hand-held tools.

INTERMEDIATE KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Understanding the use of a range of hand-held mechanical and low tech-tools, e.g. spirit level, etc.

2. Following instructions accurately.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.3.5**AGRICULTURAL PRACTICES**

TITLE	:	APPLY LAYOUT PRINCIPLES FOR CONSERVATION AND INFRASTRUCTURE
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to plan, lay out and maintain conservation and structures and prevention measures in an agricultural environment, report faults, and where appropriate, repair them under supervision.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 1: Apply elementary farm layout and infrastructure.

NQF 1: Demonstrate an understanding of the basic concepts of sustainable farming systems.

SPECIFIC OUTCOMES

A person assessed as competent on this unit standard will be able to:

1. Recognise veld and soil types, animal and human behaviour and demarcate appropriate areas for sustainable resource use in the layout of the farm.
2. Construct the infrastructure and relate the physical and chemical characteristics of soil, landscape and local climate and land capability, and demarcate areas for sustainable use.
3. Understand the design of farm layout according to agricultural, water catchment and environmental conservation areas.
4. Design and construct basic infrastructure using simple tools and equipment.
5. Maintain, report faults, and where appropriate repair them under supervision.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

A person assessed as competent against this standard will be able to:

- 1 Recognise veld and soil types, animal and human behaviour and demarcate appropriate areas for sustainable resource use in the layout of the farm.

Range: All resources on the farm, suitable for main farming enterprises.

Assessment criteria:

- 1.1 The major physical characteristics are observed and pointed out.
- 1.2 Suitability for infrastructure or maintenance is assessed.
- 1.3 The problems that could be caused by various enterprises or activities are evaluated.

- 2 Construct the infrastructure and relate the physical and chemical characteristics of soil, landscape and local climate and land capability and demarcate areas for sustainable use.

Range: Number, spacing and size structures should be identified, evaluated and surveyed.

Assessment criteria:

- 2.1 The area where structures should be placed to optimise management are identified and pointed out.
 - 2.2 Structures are constructed in identified areas under supervision.
- 3 Understand the design of farm layout according to agricultural, water catchment and environmental conservation areas.

Range: Evaluate a range of relevant resources, characteristics and climate in relation to potential land use and effect of (to be) erected structures.

Assessment criteria:

- 3.1 The potential of the natural resources to be sustainable is evaluated.
 - 3.2 Potential is estimated and sites with high potential for erosion, decay or damage are identified.
 - 3.3 Areas for infrastructure construction are surveyed and information is used to decide on placement of structures.
- 4 Design and construct basic infrastructure using simple tools and equipment at appropriate spacings with supervision. Construct structures at appropriate spacings with supervision.

Range: Collection of structures as appropriate for the natural environment and selected enterprise.

Assessment criteria:

- 4.1 The site is assessed to decide on appropriateness for structures and natural resource conservation layout.
 - 4.2 The principle layout and systems that are appropriate for the local area are explained.
 - 4.3 A system is designed using drawings; three-dimensional models in sand or other representations, showing how water can be used more effectively and degradation can be reduced by soil and water conservation.
- 5 Maintain, report faults, and where appropriate repair them under instruction.

Range: A variety of maintenance tasks relevant to the farm layout and enterprise.

Assessment criteria:

- 5.1 Faults are identified.
- 5.2 Maintenance tasks relevant to the farm layout and use for enterprise are demonstrated.
- 5.3 Basic reparation tasks, where necessary, are demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 – 4.
2. **Teamwork:** relates to specific outcomes 1 – 4.
3. **Self-management:** relates to specific outcomes 1 – 4.

4. **Interpreting Information:** 1 – 4.
5. **Communication:** relates to specific outcomes 1 – 4.
6. **Use Science and Technology:** relates to specific outcomes 1 – 4.
7. **The world as a set of related systems:** relates to specific outcomes 1 – 4.
8. **Self-development:** relates to specific outcomes 1 – 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Working safely with a range of hand-held tools.

INTERMEDIATE KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic sustainable agricultural principles.
2. Environmental indicators.
3. Basic soil types and their features i.e. clay, sand, loam and its distribution.
4. Basic weather patterns i.e. summer, winter, basic clouds and energy/ carbon/ hydrological/ oxygen cycles.
5. Basic water cycle and water management.
6. Basic veld types i.e. savanna, fynbos, forest, karoo and links to weather patterns.
7. Basic ecosystems, their distribution and links to the rest of the environment i.e. wetlands, grasslands, mountains.
8. Use of hand-held tools.
9. Basic natural resources (water, soil, veld, energy, heat), their limitations and sustainable uses.
10. Use of basic waste as a resource i.e. types for erosion control, trench gardening.
11. Basic alternative energies i.e. wind, sun, gravity and some of their uses.
12. Basic soil conservation and crop rotation methods.
13. Basic environmental indicators such as soil erosion, basic signs of land degradation.
14. Following instructions and reporting on conditions.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.3.6**AGRICULTURAL PRACTICES****TITLE****OPERATE AND SUPPORT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN**

SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to monitor and support the implementation of food safety and quality, production, environmental and social practices and awareness within the agricultural supply chain.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. The application of food safety in primary agriculture is focussed on in this unit standard.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. A culture of maintenance and care will be instilled for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Recognise pests and diseases and weeds on crops.

NQF 1: Apply basic food safety practices.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Apply basic food safety practices.
2. Illustrate a basic knowledge to distinguish and to report non-conformances and deviations on food safety, quality and the environment in the agricultural supply chain.
3. Understand basic health and social issues in the agricultural environment.
4. Demonstrate an understanding of risk factors in food safety and quality related to the agricultural supply chain.
5. Demonstrate basic understanding of record keeping activities on the farm.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Apply basic food safety practices.

Range: Food safety practices include but are not limited to hygiene, conservation, waste and pollutants, etc.

Assessment criteria:

- 1.1. Good personal hygiene practices are applied.
 - 1.2. Preventative measures against food contamination are applied.
 - 1.3. Warning signs regarding product safety are adhered to.
-
2. Illustrate basic knowledge to distinguish and report non-conformances and deviations in food safety, quality and the environment with reference to the agricultural enterprise.

Range: Non-conformances and deviations in food safety include but are not limited to deviations from pre-harvest norms such as with fertilizers, agrochemical application, handling etc.

Assessment criteria:

- 2.1. The way non-conformances and deviations in the food safety and quality will be detected is described.
 - 2.2. The way this problem will be traced to a pre-harvest environment is explained.
 - 2.3. The types of problems the enterprise can have on the environment if plans to deal with deviations are not in place are explained.
 - 2.4. The need for worker training with regards to detecting problems in the system and being able to trace it to the source is discussed.
-
3. Understanding basic health and social issues in the agricultural environment.

Range: Basic health and social issues include but are not limited to a basic understanding of the occupational health and safety act (OHSA) with reference to the workers and working environment.

Assessment criteria:

- 3.1. The importance of good health care practices is explained.
(Range: good health care practices include but are not limited to HIV/AIDS, communicable diseases, good nutrition, drug abuse and dependency.)
- 3.2. A brief description of the OHSA and how it relates to the specific agricultural enterprise is given.
- 3.3. The rights of the workers are described with regard to the OHSA and the specific agricultural enterprise.
- 3.4. Basic record keeping and training of the workers are discussed with regard to the OHSA and social issues.
- 4.
5. Demonstrate an understanding of risk factors in food safety and quality related to the agricultural supply chain.

Range: Risk factors in food safety and quality include but are not limited to chemical, physical and biological factors.

Assessment criteria:

- 5.1. What is understood by food safety and quality is explained with reference to the agricultural enterprise.
- 5.2. The different elements that can affect food safety and quality are described.
- 5.3. The role of worker health and welfare on food safety and quality is discussed.
- 5.4. The different records required to assist the operation is described.
6. Demonstrate basic understanding of record keeping activities on the farm.

Range: Record keeping includes but is not limited to systematic filing of documents of the farming operations and personnel, both electronically and manually etc.

Assessment criteria:

- 6.1. Your understanding of record keeping is explained.
- 6.2. The importance of a systematic filing system for records in accordance with GAP (good agricultural practices) and GMP (good manufacturing practices) principles is discussed.
- 6.3. How and where certain files will be found is demonstrated e.g. regarding chemical usage, training or environmental issues etc.
- 6.4. The process that will be followed to find or identify where a problem in the operation occurred is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-5.
2. **Team work** relates to specific outcomes 1-5.
3. **Self-organisation and management** relates to specific outcomes 1-5.
4. **Information evaluation** relates to specific outcomes 1-5.
5. **Communication** relates to specific outcomes 1-5.
6. **Use science and technology** relates to specific outcomes 1-5.
7. **Inter-relatedness of systems** relates to specific outcomes 1-5.
8. **Self development** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

A competent learner will demonstrate a basic knowledge of:

1. Basic principles of different regulations, requirements and regulatory aspects with reference to the agricultural enterprise are understood.
2. Good agricultural/manufacturing/processing/health practices.
3. Standard operation procedures on the farm.
4. Food borne illnesses.
5. Impact of food safety and quality in trade.
6. Contamination risks.
7. Contamination preventative measures.
8. Risk factors related to food safety.
9. Principles of food safety and quality.
10. Basic principles of environmental and conservation management.
11. Basic principles of waste and pollution management.
12. Basic principles of natural resource management.
13. Basic record keeping practices.
14. Agricultural hygiene principles.
15. Effective personal hygiene practices.

SUPPLEMENTARY INFORMATION

NOTES

This unit standard has reference to workers who are in a management or supervisory level of operations within different fields of the agricultural enterprise to assist with the process of assuring that accreditation for the different export markets are achieved or adhered to.

END

LEVEL 2.4.1**ANIMAL PRODUCTION**

TITLE	:	EVALUATE EXTERNAL ANIMAL ANATOMY AND MORPHOLOGY
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to evaluate animals externally with respect to their internal and external anatomical systems and morphology. In addition they will be well positioned to extend their learning and practice into other areas of animal production.

Learners will gain specific knowledge and skills in animal anatomy and physiology and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standard or equivalent:

NQF 1: Evaluate Basic External Animal Anatomy and Morphology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and name various levels of the standard nomenclature of the animal kingdom.
2. Identify and understand the names and purposes of the external divisions or parts of animals and identify and evaluate gross abnormalities and their probable causes therein.
3. Identify and understand the composition and structure of the external divisions or parts of animals and identify and evaluate gross abnormalities and their probable causes therein.
4. Identify and name the basic composition and structures of further anatomical systems according to criteria.
5. Identify and describe the life cycles of the specific animal.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and name various levels of the standard nomenclature of the animal kingdom.

Range: This includes, but is not limited to fish, birds, mammals, insects, crustaceans, reptiles and amphibians as relevant to the context of operation.

Assessment criteria:

- 1.1 The standard biological classification nomenclature is identified, levels are named and examples of each level are given.
- 1.2 Animals are named and grouped according to the naming system.
- 1.3 Animal attributes are identified to group and classify them.

2. Identify and understand the names and purposes of the external divisions or parts of animals and identify and evaluate gross abnormalities and their probable causes therein.

Range: Parts include but are not limited to external sensory organs and gross body parts such as head, thorax, abdomen, back, legs, fins, horns, udders, antennae, feet, hooves, claws, wings, beaks, etc. as relevant to the context of operation.

Abnormalities include but are not limited to breaks, deformities, scarring and damage.

Assessment criteria:

- 2.1 Animal body parts are identified and demonstrated pictorially, practically or diagrammatically.
 - 2.2 Gross abnormalities and their possible causes are identified.
 - 2.3 The purpose of animal body parts are identified and demonstrated pictorially, practically or diagrammatically.
3. Identify and understand the composition and structure of the external divisions or parts of animals and identify and evaluate gross abnormalities and their probable causes therein.

Range: Parts include but are not limited to external sensory organs and gross body parts such as head, thorax, abdomen, back, legs, fins, horns, udders, antennae, feet, hooves, claws, wings, beaks, etc. as relevant to the context of operation.

Abnormalities include but are not limited to breaks, deformities, scarring and damage.

Assessment criteria:

- 3.1 The composition of each of the external divisions of the animal is identified.
 - 3.2 The structure of each of the external divisions or parts of animals is identified.
 - 3.3 Gross abnormalities in animal body parts are identified and evaluated and their possible causes are identified.
4. Identify and name the basic composition and structures of further anatomical systems according to criteria.

Range: Anatomical systems include but are not limited to external systems and covering, skeleton, musculature, nervous system, cardio vascular system, digestive system, lymph, reproductive system and the endocrine and glandular systems as relevant to the context of operation.

Assessment criteria:

- 4.1 Anatomical systems are identified and their structures, purpose and components are named and described according to criteria.
 - 4.2 The structures of anatomical systems are demonstrated pictorially diagrammatically or practically according to criteria.
 - 4.3 External parts of further anatomical systems are identified practically.
(*Range:* External parts of internal anatomical systems include but are not limited to nostrils, anus, muzzle, etc.).
5. Identify and describe the life cycles of the specific animal.

Assessment criteria:

- 5.1 The various steps in the life cycle of the animal and their descriptions are identified.

(*Range*: this includes but is not limited to animals with complete life cycles or incomplete life cycles according to class).

- 5.2 The morphology of the various steps in the life cycles is identified.
- 5.3 The environmental or habitat preferences for the various steps in the life cycle and the vulnerability of the animal, where appropriate are identified.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1-3.
2. **Teamwork:** Relates to outcomes 1-3.
3. **Self-Management:** Relates to all outcomes.
4. **Interpreting Information:** Relates to outcome 2.
5. **Communication:** Relates to all outcomes.
6. **Use Science and Technology:** Relates to all outcomes.
7. **The world as a set of related systems:** Relates to all outcomes.
8. **Self-development:** Relates to outcome 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Dissections technique.
2. Biological names, concepts and terminology
3. Various applicable external characteristics and properties of animals and their components.
4. Various applicable sensory cues regarding gross abnormalities in animals.
5. Various applicable abnormalities in animals and their probable causes.
6. Actions to be performed in the event of the perception of various sensory cues in the external anatomy and physiology of animals.
7. The appropriate procedures and codes of practice regarding the handling and evaluation of animals.
8. Basic technical drawing or sketching or verbal communications techniques.
9. The effect of the identification of gross abnormalities on the well being of the animal.
10. Theory regarding the basic composition and structure of various external and internal anatomical systems.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.4.2**ANIMAL PRODUCTION**

TITLE : **IDENTIFY BASIC BREEDING PRACTICES FOR FARM ANIMALS**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 5

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

Qualifying learners are capable of identifying and monitoring breeding behaviour, and pre and post-partum behaviour of farm animals.

Learners will gain specific knowledge and skills in field of animal production and the breeding of farm animals and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 1: Recognise basic breeding behaviour of farm animals.

NQF 1: Evaluate basic external animal anatomy and physiology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify standing oestrus of female breeding animals where appropriate.
 2. Observe the libido of the male breeding animal where appropriate.
 3. Recognise the signs of giving birth in female breeding animals.
 4. Identify abnormal behaviour of breeding animals during the birth process.
 5. Observe and monitor post-partum behaviour of breeding animals.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify standing oestrus of female breeding animals where appropriate.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation.

Assessment criteria:

- 1.1 The breeding animals must be approached in the correct way according to specified guidelines.
- 1.2 Signs of oestrus are recognised and described in a group of female breeding animals.
- 1.3 Signs of any abnormal behaviour in the female breeding animals are recognised.
- 1.4 Observations of normal and abnormal behaviour are reported to the supervisor.

2. Observe the libido of the male breeding animal where appropriate.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation.

Assessment criteria:

- 2.1 The male animals must be approached in the correct way according to specified guidelines.
- 2.2 Signs of libido are recognised and described in the male animal.
- 2.3 Signs of any abnormal behaviour in the male animal are recognised.
- 2.4 Observations of normal and abnormal behaviour are reported to the supervisor.

3. Recognise the signs of giving birth in female breeding animals.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation.

Assessment criteria:

- 3.1 The breeding animals must be approached in the correct way according to specified guidelines.
- 3.2 Signs of giving birth are recognised and described in a group of female breeding animals.
- 3.3 Animals that are observed to be close to parturition are identified and recorded.
- 3.4 Observations of parturition are reported to the supervisor.

4. Identify abnormal behaviour of breeding animals during the birth process.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation.

Assessment criteria:

- 4.1 The normal birth process in breeding animals is explained.
- 4.2 Birth problems are recognised and the level of assistance with such problems is correctly determined.
- 4.3 The general health, environment, nutrition and reproductive performance of the group are monitored.
- 4.4 Signs of any abnormal behaviour in the birth process are recognised and recorded.
- 4.5 Observations of normal and abnormal behaviour are reported to the supervisor.

5. Observe and monitor post-partum behaviour of breeding animals.

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation.

Assessment criteria:

- 5.1 The behaviour of the newborn offspring must be recognised and explained.
- 5.2 Behaviour of the newborn offspring must be monitored and the level of assistance required must be determined.
- 5.3 Signs of abnormal behaviour must be recognised in the female animals and the offspring.
- 5.4 Observations of normal and abnormal behaviour are reported to the supervisor.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Interpreting Information:** Relates to outcomes 1 to 5.
2. **Problem Solving:** Relates to outcomes 4 and 5.
3. **Self-Management:** Relates to outcomes 1 to 5.
4. **Communication:** Relates to outcomes 1 to 5.
5. **Self-Development:** Relates to outcomes 1 to 5.
6. **World as a set of related systems:** Relates to outcomes 4 and 5.
7. **Using science and technology:** Relates to all outcomes.
8. **Teamwork:** Relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic principles of reproduction and parturition in farm animals.
2. Anatomy and physiology of reproduction.
3. Observations of reproduction and parturition in farm animals.
4. Basic farm practices.
5. Communication and literacy.
6. The purpose of reproduction and parturition.
7. Correct procedures to follow during reproduction and parturition.
8. The effects of reproduction and parturition problems on the well being of the animal and its offspring.
9. Procedures and practices on the farm.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.4.3**ANIMAL PRODUCTION**

TITLE : RESPOND CORRECTLY TO CONTROL DEFENSIVE BEHAVIOUR IN ANIMALS

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 4

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to respond appropriately to defensive behaviour in specific animals. In addition they will be well positioned to extend their learning and practice into other areas of agriculture to the benefit of the industry.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standard or equivalent:

NQF 1: Recognize defensive behaviour in animals.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Illustrate possible responses to defensive behaviour.
2. Observe, illustrate and report on observations regarding defensive behaviour under supervision.
3. Explain correct reactions to minimise risk when working with animals.
4. List correct procedures when working with animals.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Illustrate under supervision the possible responses to defensive behaviour.

Range: Possible appropriate responses include but are not limited to removing the cause of the animal's defensiveness, or by removing the ability of the animal to defend itself, or by removing animal(s) or person(s) or property in danger of harm or damage, or by removal or restricting or controlling the animal(s) exhibiting defensiveness in any or more of the following ways: stunning the animal, control by using substances (medicinal, therapeutic, organic), destroying or killing the animal(s), shutting the animal in by roping, caging or otherwise restricting the animal from causing damage, harm or injury.

Assessment criteria:

- 1.1 An understanding of the animal's behaviour during defensiveness is demonstrated.
(*Range:* Defensive behaviour includes but is not limited to butting, biting, stinging, kicking, charging, feinting, hissing, closing, clamping, pinching)
- 1.2 Appropriate equipment utilised to manage animal control is demonstrated.
- 1.3 The ability to identify and remove the cause of the animal's defensiveness is demonstrated.
- 1.4 The ability to curb the animal's defensive ability is illustrated.
- 1.5 The ability to remove target animals or humans or property from the defensive animal is demonstrated.

2. Observe, illustrate and report on observations regarding defensive behaviour.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 2.1 The individual is able to identify and illustrate all the responses to defensive behaviour in specific animals.
- 2.2 The individual must learn how to contain the reaction and manage the animals under supervision to ensure that defensive behaviour is not evident.
- 2.3 Observations regarding animal behaviour are observed, illustrated and reported on.

3. Explain correct reactions to minimise risk when working with animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria

- 3.1 Correct reactions to defensive behaviour are understood, described and illustrated.
- 3.2 The correct procedures for working with animals are described.

- 3.3 The treatment of people and animals injured or otherwise affected by defensive behaviour of animals is understood at a basic level.
- 4
- 5 List correct procedures when working with animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 5.1 The basic hazards involved when working with animals are understood and the correct procedures for handling are learned.
- 5.2 Information regarding the identification of defensive behaviour in animals is observed and studied in practice and in literature.
- 5.3 The application of animal defensive control techniques is demonstrated in practice and under supervision.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.

- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 4.
2. **Teamwork:** Relates to outcomes 2 to 4.
3. **Self-Organisation and Management:** Relates to outcomes 1 to 4.
4. **Communication:** Relates to outcomes 1 to 4.
5. **Personal Development:** Relates to outcomes 1 to 4.
6. **Interpretation of information:** Relates to outcomes 1 to 4.
7. **The world as a set:** Relates to outcomes 1 to 4.
8. **Science and technology:** Relates to outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animal's behaviour, specifically its defensiveness
2. Origin of animal defensiveness
3. Evaluation of animal defensive behaviour and its effects
4. Sensory observation and evaluation of animal defensiveness
5. Observation of persons affected by the defensive behaviour of animals
6. Evaluation of the condition of such persons
7. Basic treatment of people affected by animal defensiveness behaviour
8. The purpose of learning about animal defensiveness
9. Basic record keeping

10. Handling of emergency situations

11. Animal control

SUPPLEMENTARY INFORMATION

NOTES

END



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**LEVEL 2.4.4 ANIMAL PRODUCTION
SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:**

Assess the influence of the environment on sustainable livestock production

SAQA US ID	UNIT STANDARD TITLE		
13356	Assess the influence of the environment on sustainable livestock production		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Primary Agriculture	ABET Level 4		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Agriculture and Nature Conservation		Primary Agriculture	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NOF LEVEL	CREDITS
AGR-PAG-0-SGB PA	Regular	Level 1	4
REGISTRATION START DATE	REGISTRATION END DATE	REGISTRATION NUMBER	SAQA DECISION NUMBER
2000-12-06	2003-12-06	13356	SAQA 1033/00

PURPOSE OF THE UNIT STANDARD

A candidate credited with this competence will be capable to: identifying and describing environmental factors influencing the veld; assessing the influence of veld composition on livestock feeding preferences and habits; analysing and describe environmental factors that influence livestock selection; identifying and describe supplementary feeding for livestock production; identifying and describe harmful and beneficial organisms that influence livestock production; and identifying and assessing the effects of agricultural management practices on the sustainability of the environment.

LEARNING ASSUMED TO BE IN PLACE

Open

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Identify and describe environmental factors influencing the veld.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Ecological factors that influence the veld are identified.

ASSESSMENT CRITERION RANGE

includes, among others, climate, soil and topography

ASSESSMENT CRITERION 2

2. The significance of ecological factors that influence the veld are explained.

ASSESSMENT CRITERION 3

3. The three major vegetation types are identified.

ASSESSMENT CRITERION RANGE

sweetveld, sourveld and mixed veld

ASSESSMENT CRITERION 4

4. The three major vegetation types are explained.

SPECIFIC OUTCOME 2

Assess and modify the influence of veld composition on livestock feeding preferences and habits.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The concept of veld composition is investigated.

ASSESSMENT CRITERION RANGE

including the concept of pioneer and climax species

ASSESSMENT CRITERION 2

2. Veld composition as a factor in veld management is explained.

ASSESSMENT CRITERION 3

3. Palatable and non-palatable species of plants are distinguished.

ASSESSMENT CRITERION 4

4. Browsing and grazing habits are distinguished.

ASSESSMENT CRITERION 5

5. Livestock preferences and needs are distinguished.

SPECIFIC OUTCOME 3

Analyse and describe environmental factors that influence livestock selection.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The significance of environment as a factor influencing livestock selection is investigated and explained.

ASSESSMENT CRITERION 2

2. Livestock breeds and their requirements (characteristics) are analysed.

ASSESSMENT CRITERION 3

3. The regionalisation of the livestock industry as a factor influencing livestock selection, is investigated and analysed.

ASSESSMENT CRITERION RANGE

National, provincial and local.

ASSESSMENT CRITERION 4

4. The management of existing environmental factors is discussed.

SPECIFIC OUTCOME 4

Investigate supplementary feeding options for livestock production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The different ways of supplementary feeding are identified.

ASSESSMENT CRITERION RANGE

green/dry fodder and concentrates

ASSESSMENT CRITERION 2

2. Ways of supplementary feeding appropriate to the learners` context are distinguished.

ASSESSMENT CRITERION 3

3. The different types of cultivated pastures are investigated.

ASSESSMENT CRITERION 4

4. Different grazing control practices on cultivated pastures are distinguished.

ASSESSMENT CRITERION 5

5. Licks as dietary supplements are identified.

SPECIFIC OUTCOME 5

Identify and describe beneficial and harmful organisms that influence livestock production.

OUTCOME RANGE

emphasis on locally important parasites and diseases

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Beneficial organisms are identified and described.

ASSESSMENT CRITERION 2

2. The effects of internal and external parasites in livestock production are identified and described.

ASSESSMENT CRITERION 3

3. Noxious plants that hinder livestock production are identified and described.

ASSESSMENT CRITERION RANGE

poisonous plants and those which influence the quality of livestock products

ASSESSMENT CRITERION 4

4. Control options for internal and external parasites are discussed.

ASSESSMENT CRITERION 5

5. Major livestock diseases are identified and described.

ASSESSMENT CRITERION 6

6. Control and treatment interventions and programmes for livestock disease are discussed.

ASSESSMENT CRITERION RANGE

Including notifiable diseases

SPECIFIC OUTCOME 6

Conduct an investigation into the effects of agricultural management practices on the sustainability

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Principles of veld management are explained.

ASSESSMENT CRITERION 2

2. The concept of sustainability is explained.

ASSESSMENT CRITERION 3

3. Existing livestock production practices are identified.

ASSESSMENT CRITERION 4

4. Livestock production practices that enhance agricultural sustainability are identified and explained.

ASSESSMENT CRITERION 5

5. Livestock production practices that have a negative impact on the sustainability of the environment are identified and explained.

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;

UNIT STANDARD CCFO WORKING

Work effectively with others as a member of a team, group organisation and community;

UNIT STANDARD CCFO ORGANIZING

Organise and manage oneself and one's activities responsibly and effectively;

UNIT STANDARD CCFO COLLECTING

Collect, analyse, organise and critically evaluate information;

UNIT STANDARD CCFO COMMUNICATING

Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation;

UNIT STANDARD CCFO DEMONSTRATING

Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

UNIT STANDARD NOTES

Specific outcome 5 in Agri/003 can be used as the basis for developing a livestock health management programme.

Developmental Outcomes:

This unit standard supports the following developmental outcomes:

1. Reflecting on and exploring a variety of strategies to learn more effectively;
2. Participating as responsible citizens in the life of local, national and global communities;
3. Being culturally and aesthetically sensitive across a range of social contexts;
4. Exploring education and career opportunities; and
5. Developing entrepreneurial opportunities.

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LEVEL 2.4.5**ANIMAL PRODUCTION**

TITLE	:	UNDERSTAND ANIMAL NUTRITION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	7
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will understand the basic concepts used in animal nutrition, maintaining, preserving, modifying and enhancing the nutrient value of animal feeds and follow correct on-farm feeding practices. In addition they will be well positioned to extend their learning and practice into other areas of Animal production in agriculture.

Learners will gain specific knowledge and skills in animal feeding and nutrition and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 1: Apply standard animal feeding practices.
NQF 1: Apply basic food safety practices.
NQF 1: Maintain basic water quality.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand basic nutrient groups and functions and feed ingredients and groups
 2. Follow correct on-farm storage procedures to maintain feed quality
 3. Apply stock control and records
 4. Follow feed processing procedures for on-farm use
 5. Select appropriate feed type and quantity from feed store
 6. Apply correct feeding practices
 7. Identify abnormal feeding behaviour
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

4. Understand basic nutrient groups, functions, feed ingredients and groups

Range: Functions for nutrients include but are not limited to maintenance, stimulation and production.

Assessment criteria:

- 1.1 An understanding of each nutrient group and its role in the body is explained.
(Range: Protein, carbohydrates, fats, fibre, minerals, vitamins, water).
- 1.2 The ability to identify principal ingredient groupings is demonstrated.
(Range: Feed ingredients include but are not limited to grains, plant and animal proteins, NPN, pulses (oil seeds), fibre, minerals and vitamins).
- 1.3 The ability to identify principal feed groupings is demonstrated.
(Range: Feed includes but is not limited to natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and whole animals, animal products, complete feeds and supplements).

4. Following correct on-farm storage procedures to maintain feed quality.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements, as relevant to the context of operation.

Assessment criteria:

- 2.1 Correct feed storage procedures are demonstrated.
(Range: feed storage includes but is not limited to bags, bins, silos, heaps, warehouses, boxes, cages, as relevant to the context of operation.)
- 2.2 Appropriate basic fire control and management precautions are explained.
- 2.3 Precautionary insect and rodent control is explained.

3. Apply stock control and records.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements, as relevant to the context of operation.

Assessment criteria:

- 3.1 Recording and reporting on levels of feed stock is demonstrated.
- 3.2 An appropriate measure to secure feed stock against theft is explained.
- 3.3 Knowledge of requisitions, replenishment and stock assessment are demonstrated.
- 3.4 All stock levels, gains or reductions are recorded and reported appropriately.
- 4.
5. Feed processing for on-farm use.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements, as relevant to the context of operation.

Assessment criteria:

- 4.1 Feed ingredients can be identified correctly according to instructions.
- 4.2 Appropriate feed type, quality and quantity is selected from feed store for the appropriate application.
- 4.3 Feed is mixed correctly according to formulation where appropriate.
- 4.4 Recording and reporting on feed levels in stock is performed accurately.

6. Evaluate feed quality before allowing animals access to the feed

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements, as relevant to the context of operation.

Assessment criteria:

- 5.1 Feed quality assessment is demonstrated.
- 5.2 The ability to remove sub-standard or waste feeds. Is demonstrated.
- 5.3 The ability to report and record actions taken is demonstrated.
- 5.4 The ability to identify reasons for deviations and actions is demonstrated.

6. Apply correct feeding practices.

Range: Feeding strategies appropriate to extensive, semi-intensive and intensive production systems.

Assessment criteria:

- 6.1 The ability to ensure continuous water supply is demonstrated.
- 6.2 The ability to observe and report regularly on feed availability is demonstrated.
- 6.3 The ability to co-ordinate maintenance of feeding equipment is demonstrated. (Range: Troughs, dispensers, founts etc.)
- 6.4 The ability to allow animals access to feed according to program is demonstrated.

7. Identify abnormal feeding behaviour.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements.

Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects.

Assessment criteria:

- 7.1 Animals are assessed regarding their feeding habits over time.
- 7.2 Abnormal feeding behaviour is recorded and reported. (Range: Abnormal feeding behaviour in animals includes but is not limited to low intake, feed selection, feed rejection, vomiting, weight-loss (or lack of weight gain), over consumption overfeeding.
- 7.3 Any deviation or observations regarding feeding are observed and reported.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** Relates to all outcomes.
2. **Using science and technology:** Relates to all outcomes.
3. **Interrelatedness of systems:** Relates to all outcomes.
4. **Interpreting Information:** Relates to all outcomes.
5. **Problem Solving:** Relates to outcomes 2 and 3.
6. **Self-Management:** Relates to all outcomes.
7. **Communication:** Relates to all outcomes.
8. **Self-development:** Relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic comprehension and understanding of identification of groups of nutrients, ingredients and feeds.
2. Following procedures of record keeping, stock control and sensory feed evaluation and feeding programmes.
3. Responsibilities for following out tasks and apply known solutions to familiar problems.
4. Co-operating with and guiding others (develop communication skills).
5. Feed quality deviations.
6. Abnormal feeding behaviour.
7. The purpose of achieving these outcomes.
8. Reporting skills.
9. Data gathering skills

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.4.6**ANIMAL PRODUCTION**

TITLE	:	OBSERVE AND INSPECT ANIMAL HEALTH
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard must be able to identify, record and report on abnormal animal behaviour and physical abnormalities, supervise the movement and restraint of animals and apply treatment under supervision and perform basic procedures. In addition they will be well positioned to extend their learning and practice into other areas of animal health, within agriculture or veterinary science.

Learners will gain specific knowledge and skills in animal health and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 1: Observe and handle animals.
NQF 1: Evaluate basic external animal anatomy and morphology.
NQF 1: Collect agricultural data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify, inspect, and record abnormal behaviour.
 2. Supervise the movement and restraint of animals.
 3. Perform basic procedures under full supervision.
 4. Apply basic principles of basic Bio-Security.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Inspect, identify and report abnormal behaviour.

Range: Abnormal behaviour includes but is not limited to lethargy, aggression, and lack of appetite or gross signs of disease and abnormalities.

Assessment criteria:

- 1.1 The ability to observe individual animals is demonstrated.
- 1.2 Individual animals showing abnormal behaviour are identified.
- 1.3 Animals identified are recorded.
- 1.4 Problems identified are reported to the superior.

2. Supervise the movement and restraint of animals for basic procedures.

Range: Moving animals includes but is not limited to collection and moving from holding pens, tanks, houses, etc. as relevant to the context of operation.

Assessment criteria:

- 2.1 The ability to supervise the movement of animals from a holding facility to restraint facility is demonstrated.
- 2.2 The ability to restrain individual animals is demonstrated.
- 2.3 The ability to restrain groups of animals for evaluation is demonstrated.
(Range: Groups of animals include but are not limited to flocks, herds, troops, swarms, colonies, etc as relevant to the context of operation.)

3. Perform basic procedures under full supervision.

Range: Procedures include but are not limited to the restraint of animals, checking temperatures, branding, and dehorning, etc. as relevant to the context of operation.

Assessment criteria:

- 3.1 Basic hygiene procedures are demonstrated.
- 3.2 The ability to check equipment for functionality is demonstrated.
- 3.3. Sterilization of equipment is demonstrated.
- 3.3 The ability to perform the task according to a standard procedure is demonstrated.
- 3.4 The correct cleaning of equipment is demonstrated.
- 3.5 The correct storage of equipment is demonstrated.

4. Apply basic principles of basic Bio-Security.

Range: Containers include but are not limited to food bulk-bins and bait stations as relevant to the context of operation.

Protective gear include but are not limited to gloves, masks and boots.

Assessment criteria:

- 4.1 The checking for chemical containers for bio-security is explained.
- 4.2 The ability to report insufficiencies to supervisor is demonstrated.
- 4.3 The importance of protective gear is explained.
- 4.4 The ability to refill chemical containers with chemicals supplied by supervisor is demonstrated.
- 4.5 The ability to collect waste products and empty containers as well as to clean or discarded these empty containers is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to outcome 5.
2. **Teamwork:** relates to outcomes 2,3 and 4.
3. **Self-Management** relates to outcome 1, 2 and 3.
4. **Communication** relates to outcome 1, 2 and 3.
5. **Using science and technology:** relates to all outcomes.
6. **Interpreting information** relates to outcome 1 and 4.
7. **Inter relatedness:** relates to all outcomes.
8. **Self-development:** relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and functions as well as the characteristics of the relevant equipment used in the identification, recording, reporting and treatment of animal health.
2. Sensory cues relating to symptoms regarding animal health.
3. The purpose of the evaluation and treatment procedures.
4. The implications regarding the correct identification and treatment of animal symptoms.
5. Procedures involved in the identification, recording, reporting and treatment of animals.
6. All relevant legislation, rules and codes of conduct relating to the unit standard.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.4.7**ANIMAL PRODUCTION**

TITLE	:	APPLY ANIMAL PRODUCTS HARVESTING PROCEDURES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to understand how to harvest animal products, prepare them for processing and identify processes involved in processing of animal products. In addition they will be well positioned to extend their learning and practice into other areas of animal production.

Learners will gain specific knowledge and skills in harvesting animal products and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 1: Harvest animal products.
NQF 1: Observe and handle animals.
NQF 1: Apply basic food safety practices.
NQF 1: Collect agricultural data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify the estimated qualitative and quantitative value of various animal products.
 2. Observe, illustrate and report on observations in animals regarding animal products and their origin and their readiness for harvesting.
 3. Identify and illustrate the core animal product and the parts of the product that are waste (if any).
 4. Demonstrate the harvesting of the specific animal product.
 5. Identify and demonstrate the basic methodology regarding the separation of the core product from the waste.
 6. Identify and demonstrate the basic methodologies regarding the processing of animal products for preservation or presentation.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify the estimated qualitative and quantitative value of various animal products.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 1.1 The ability to identify, evaluate and illustrate all the various animal products used by man and their purpose is demonstrated.
- 1.2 The ability to identify and illustrate the origin of all the various animal products used by man is demonstrated.
- 1.3 The ability to identify, demonstrate and illustrate estimated value of these various animal products is demonstrated.
2. Observe, illustrate and report on observations in animals regarding animal products and their origin and their readiness for harvesting.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 2.1 The origin of the production of animal products in animals is understood, described and illustrated.
 - 2.2 The sensory signs and indicators that imply that the animal is ready to have products harvested from it are described.
 - 2.3 The sensory signs and indicators that indicate that the animal product is ready for harvesting are described.
 - 2.4 The handling of the animal and animal products to determine these sensory signs and indicators is described.
3. Identify and illustrate the core animal product and the parts of the product that are waste (if any).

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, bones, horns, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 3.1 The animal product's core product and parameters is observed and described.
 - 3.2 The waste component of the animal product (if any) is observed and described in relation to the product produced or spoilage.
(Range: waste components could include but are not limited to products that may or may not be used as products by any alternative process, such as shells, bones, hair, wax, casings, offal, fat, etc.).
 - 3.3 A knowledge about the separation of the agricultural product from the waste is demonstrated.
 - 3.4 The disposal of waste product from animal products is demonstrated.
4. Demonstrate the harvesting of the specific animal products.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, bones, horns, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs

and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 4.1 The harvesting of the specific animal product is demonstrated practically.
 - 4.2 The process and method used in the harvesting of the animal product is illustrated, as well as any ranges and parameters involved in the harvesting process.
(Range: Ranges and parameters include but are not limited to the humane and safe treatment and handling of the animal, product readiness, legal aspects regarding the harvesting process and the product, the equipment used to harvest the product).
 - 4.3 The separation process of cleaning the product from the waste is demonstrated practically.
5. Identify and demonstrate the basic methodology regarding the separation of the core product from the waste.
- Range:** Waste components could include but are not limited to products that may or may not be used as products by any alternative process, such as shells, bones, hair, wax, casings, offal, fat, etc. as relevant to the context of application.

Assessment criteria:

- 5.1 The processes involved in separating the waste from harvested animal products are illustrated and described.
 - 5.2 The separation of animal products from waste is demonstrated practically.
 - 5.3 The methodology involved in the separation of animal products from the waste is illustrated and described.
6. Identify and demonstrate the basic methodologies regarding the processing of animal products for preservation or presentation.
- Range:** Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 6.1 The ability to identify, demonstrate and illustrate all the processes involved in preparing the harvested animal products for preservation is demonstrated.
- 6.2 The ability to identify, demonstrate and illustrate all the processes involved in preparing the harvested animal products for presentation is demonstrated.

(Range: presentation involves but is not limited to the presentation of animal products for inspection, for showing, for offering for sale, for presenting to the next process in the range of processors).

- 6.3 The various processes used in the preservation of animal products are demonstrated where appropriate.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 6.
2. **Teamwork:** Relates to outcomes 4-6.
3. **Self-Organisation and Management:** Relates to outcomes 1 to 6.
4. **Communication:** Relates to outcomes 1-6.
5. **Personal Development:** Relates to outcomes 1 to 6.
6. **Interpretation of information:** Relates to outcomes 1 to 6.
7. **The world as a set:** Relates to outcomes 1 to 6.
8. **Science and technology:** Relates to outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animals and animal products.
2. Understanding of the origin of animal products.
3. Sensory observation and evaluation of animals and their products.
4. Evaluation of the potential of animal products.
5. Animal product harvesting.
6. The purpose of learning about animal products.
7. Animal product production.
8. Animal product processing.
9. Animal product presentation.
10. Demonstration and illustration techniques.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.5.1**PLANT PRODUCTION**

TITLE : UNDERSTAND THE STRUCTURE AND FUNCTIONS OF A PLANT

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 5

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner will be able to identify the basic structures and functions of a plant.

Learners will gain specific knowledge and skills in plant physiology and anatomy and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

RANGE

Physiology refers to photosynthesis.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 1: Demonstrate a basic understanding of the structure and function of a plant in relation to its environment.

NQF 1: Collect Agricultural data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify the basic parts that make up a seed and its basic function.
 2. Demonstrate an understanding of the different root systems and their basic function.
 3. Demonstrate an understanding of different stem types.
 4. Identify the different types of leaves and the role leaves play in food production for the plant.
 5. Identify the different parts of the flower and their basic functions.
 6. Demonstrate an understanding of the different types and parts of a fruit.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify the basic parts that make up a seed and its basic function.
Range: The parts of the seed may include but is not limited to seed coat, hypocotyls, cotyledons, embryo and endosperm.

Assessment criteria:

- 1.1 Different parts, which make up a seed, are identified and correct terminology is used.
- 1.2 The role of the embryo in the germination of the seed is described.
- 1.3 The fact that the radicals form the roots, hypocotyls, the stem, cotyledons and the leaves are explained.
- 1.4 The difference between monocotyledons and dicotyledons is explained.
- 1.5 The functions of roots, stems and leaves are described and discussed.

2. Demonstrate an understanding of the different root systems and its basic function.

Range: Root system may include, but not limited to tap root, adventitious roots and root hairs.
Chemicals may refer to plant nutrients (e.g. fertilizers, manure or organic matter)

Assessment criteria:

- 2.1 The different root systems found on different plants are explained.
- 2.2 The way roots function to support the plant is discussed.
- 2.3 The function of roots in the uptake of water and plant nutrients is described.
- 2.4 Geotropism is explained with reference to roots and stems.

3. Demonstrate an understanding of different stem types.

Range: The different stem types may include, but is not limited to corns, rhizomes, tubers etc.

Assessment criteria:

- 3.1 Different stem types and their functions are described.
 - 3.2 The fact that the stem supports the branches and leaves and connects to the roots is explained.
 - 3.3 The fact that water and plant nutrients pass up to the leaves, and carbohydrates passes down to the roots along the stem, is explained.
4. The different types of leaves and the role leaves play in food production for the plant are identified.

Range: The different types of leaves may include but is not limited to narrow, broad, simple and compound leaves. Food production refers to photosynthesis.

Assessment criteria:

- 4.1 Morphology of different types of leaves is identified and described.
- 4.2 The role of the leaves as the “food factory” of the plant (photosynthesis) is discussed.
- 4.3 The reason sunlight is important for chlorophyll production is explained.
- 4.4 The way leaves react to different environmental factors (drought, flooding darkness etc) is explained.

5. Identify the different parts of the flower and their basic functions.

Range: The different parts of a flower may include, but is not limited to sepals, petals and pistils.

Assessment criteria:

- 5.1 The basic structure of a flower is illustrated.
- 5.2 The different structures that make up a flower are identified and described.
- 5.3 The function of the male and female structures of a flower is explained.
- 5.4 The role of female flowers in relation to fruit and seed production is described.

6. Demonstrate an understanding of the different types and parts of a fruit.

Range: The different types of fruits may include but is not limited to drupes, pomes, and stones. The different parts of the fruit may refer to the exocarp, mesocarp and endocarp

Assessment criteria:

- 6.1 Different types of fruit are identified and examples of each are given.
- 6.2 The differences between single and multi-seeded fruits are explained.
- 6.3 The different parts of a fruit are illustrated and described.
- 6.4 The function of the different parts of the fruit is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving** relates to specific outcomes 1 to 6.
2. **Self-Management** relates to specific outcomes 1 to 6.
3. **Information Evaluation** relates to specific outcomes 1 to 6.
4. **Communication** relates to specific outcomes 1 to 6.
5. **Use Science and Technology** relates to specific outcome 4.
6. **Inter-relatedness of systems** relates to specific outcome 4.
7. **Self-development** related to specific outcomes 1 to 6.
8. **Teamwork:** relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of the different parts of the plant including the roots, leaves, flower and fruit.
2. Different properties of plants, composition (make-up) and characteristics.
3. Descriptions of the life cycle of plants.
4. Basic concepts of water/ chemical uptake and food production by the plant parts.
5. The sensors of sight, touch and smell are used in the identification and explanation of plant parts and functions.
6. The laws of nature that apply to plants and the environment.
7. Relationships that exist between the entire plant and the environment.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.5.2 PLANT PRODUCTION

TITLE	:	MONITOR THE ESTABLISHMENT OF A CROP
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to plant a range of crops and monitor the correct establishment of crops as well as ensuring that planting is placed and spaced as required. This Unit Standard forms part of the prior learning required in the areas of plant manipulation and plant propagation.

Learners will gain specific knowledge and skills in establishing the crop and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 1: Demonstrate an understanding of the basic concept of sustainable farming systems.

NQF 1: Propagate plants.

NQF 1: Fertilise soil and attend to basic plant nutrition.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Select, use and care for the appropriate tools and equipment used in the planting of a specific crop.
2. Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.
3. Understand the impact of environmental conditions on the successful establishment of crops.
4. Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Select, use and care for the appropriate tools and equipment used in the planting of a specific crop.

Range: Tools may include but is not limited to spades and forks. Equipment may include, but is not limited to planting lines.

Assessment criteria:

- 1.1 The correct tools and equipment to plant a specific crop according to prescribed methods are selected.
 - 1.2 The reason for selecting specific equipment is explained.
 - 1.3 Tools and equipment are used correctly.
 - 1.4 Tools and equipment are cleaned and returned to storage in good order.
2. Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.

Range: Planting material may include, but is not restricted to, long term crops and cash crops. The handling of plants include, but are not limited to, the safe storage of plants before planting, the prevention of damage to plant material, ensuring that the planting material has sufficient moisture, and that sanitary precautions are adhered to. Planting methods include, but are not restricted to planting by hand and planting with use of hand-held tools.

Assessment criteria:

- 2.1 Healthy plants suitable for optimal growth are identified and selected.
- 2.2 The preparation of planting areas is monitored to suit the requirements of the selected planting material.
- 2.3 The planting at the correct time of day to ensure optimal growth of plants is monitored (e.g. not during the hottest time of the day).

- 2.4 The safekeeping of plant material that is on hand for planting (i.e. keeping them moist and sheltered) is monitored.
 - 2.5 The watering of newly planted material is monitored.
 - 2.6 The replacement of weak, diseased and dying plants among the newly planted material is monitored.
 - 2.7 Basic hygiene standards are monitored to prevent cross-contamination.
3. Understand the impact of environmental conditions on the successful establishment of crops.

Range: Environmental effects include, but are not restricted to temperature, wind, humidity, rain, soil, etc.

Assessment criteria:

- 3.1 The effects of temperature and humidity on seedlings are explained.
 - 3.2 The effects of root shock are explained.
 - 3.3 Favourable soil conditions for transplanting seedlings are identified and explained.
 - 3.4 The impact of heavy rain showers on seedlings is explained.
4. Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species.

Range: Spacing, depth and distance include, but are not limited to the distance indicated on plant line, measurements as prescribed, etc

Assessment criteria:

- 4.1 The correct spacing requirement of a specific crop is identified.
- 4.2 The optimal depth required for planting a specific crop is identified.
- 4.3 Plants are planted at the correct spacing between rows and between individual plants.
- 4.4 Plants are planted at the correct depth.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 2 to 4.
2. **Self-Management:** relates to specific outcomes 1 to 4.
3. **Interpreting Information:** relates to specific outcomes 1 to 4.

4. **Communication:** relates to specific outcomes 2 and 4.
5. **Use Science and Technology:** relates to specific outcomes 2 to 4.
6. **The world as a set of related systems:** relates to specific outcome 4.
7. **Self-development:** relates to specific outcomes 1 to 4.
8. **8Teamwork:** relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of machinery for the planting process.
2. Attributes and characteristics of the planting process.
3. The purpose of monitoring the planting process.
4. The safety procedures related to working with hand-held tools.
5. Plant hygiene principles during planting.
6. Ensuring that the correct procedures are followed during planting.
7. Plant requirements during planting.

SUPPLEMENTARY INFORMATION

NOTES

END



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**LEVEL 2.5.3 PLANT PRODUCTION
SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:**

Demonstrate an understanding of the physical and biological environment and its relationship to sustainable crop production

SAQA US ID	UNIT STANDARD TITLE		
13355	Demonstrate an understanding of the physical and biological environment and its relationship to sustainable crop production		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Primary Agriculture	ABET Level 4		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Agriculture and Nature Conservation		Primary Agriculture	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
AGR-PAG-0-SGB PA	Regular	Level 1	4
REGISTRATION START DATE	REGISTRATION END DATE	REGISTRATION NUMBER	SAQA DECISION NUMBER
2000-12-06	2003-12-06	13355	SAQA 1033/00

PURPOSE OF THE UNIT STANDARD

A candidate credited with this unit standard will be capable of: identifying and describing the nature of soil; soil as a factor in agricultural production; climatic factors influencing crop production and their practical implications; the importance of water as a factor in agricultural production; the influence of topography on agricultural production; biological organisms as a factor influencing crop production and assessing the effects of crop production practices on the sustainability of the environment.

LEARNING ASSUMED TO BE IN PLACE

Open

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Identify and describe the nature of soil.

OUTCOME RANGE

Physical properties of soil

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The principle that soil is a product of its environment is described.

ASSESSMENT CRITERION 2

2. Soil components are identified.

ASSESSMENT CRITERION RANGE

sand; loam; clay

ASSESSMENT CRITERION 3

3. Soil texture is identified.

ASSESSMENT CRITERION 4

4. Soil texture is described.

ASSESSMENT CRITERION 5

5. Soil structure is identified.

ASSESSMENT CRITERION RANGE

structured and structureless soil

SPECIFIC OUTCOME 2

Analyse soil as a factor in crop production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Reasons why soil is a factor in crop production are provided.

ASSESSMENT CRITERION 2

2. Factors affecting the role of soil in crop production are described.

ASSESSMENT CRITERION 3

3. The concept of soil productivity is explained.

ASSESSMENT CRITERION 4

4. Factors that improve soil productivity and crop production are investigated.

ASSESSMENT CRITERION 5

5. Soil limitations in crop production are identified.

ASSESSMENT CRITERION 6

6. Ways to overcome soil limitations in crop production are explained and justified.

SPECIFIC OUTCOME 3

Identify and describe climatic factors influencing crop production and their practical implications

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Climatic factors influencing crop production are identified.

ASSESSMENT CRITERION 2

2. Climatic factors influencing crop production are described.

ASSESSMENT CRITERION 3

3. The influence of climatic factors on crop production is explained.

ASSESSMENT CRITERION 4

4. Crop production practices that can be adapted to climatic factors are investigated and reported.

SPECIFIC OUTCOME 4

Identify and describe the importance of water as a factor in crop production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Sources of water are identified.

ASSESSMENT CRITERION RANGE

Source, quality and quantity

ASSESSMENT CRITERION 2

2. The role of water in crop production is explained.

ASSESSMENT CRITERION 3

3. The principle of water as a finite resource in crop production is explained.

ASSESSMENT CRITERION 4

4. The optimal use of water resources in crop production is explained.

ASSESSMENT CRITERION 5

5. Conclusions regarding the significance of water in crop production are drawn.

SPECIFIC OUTCOME 5

Identify and describe the influence of topography on crop production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Topography is defined and explained.

ASSESSMENT CRITERION 2

2. Topography as a factor influencing crop production is explained.

ASSESSMENT CRITERION 3

3. Topography as a factor influencing crop production practices is evaluated.

ASSESSMENT CRITERION 4

4. Practices for overcoming topographical limitations to crop production are investigated and reported.

SPECIFIC OUTCOME 6

Identify, describe and explain the biological organisms as a factor influencing crop production.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The beneficial effects of micro-organisms on crop production are identified and described.

ASSESSMENT CRITERION 2

2. The harmful effects of micro-organisms in crop production are identified and described.

ASSESSMENT CRITERION 3

3. Control options of harmful micro-organisms in crop production are identified and described.

ASSESSMENT CRITERION 4

4. The beneficial effects of invertebrates in crop production are identified and described.

ASSESSMENT CRITERION 5

5. The harmful effects of invertebrates on crop production are identified and described.

ASSESSMENT CRITERION 6

6. Control options for invertebrates in crop production are identified and described.

ASSESSMENT CRITERION 7

7. Weeds as a limiting factor in crop production is explained.

ASSESSMENT CRITERION 8

8. Control options for weeds in crop production are discussed.

SPECIFIC OUTCOME 7

Assess the effects of crop production practices on the sustainability of the environment.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. The concept of sustainability is explained and defined.

ASSESSMENT CRITERION 2

2. Existing crop production practices are identified.

ASSESSMENT CRITERION 3

3. Crop production practices that enhance agricultural sustainability are identified and explained.

ASSESSMENT CRITERION 4

4. Crop production practices that have a negative impact on the sustainability of the

environment are identified and explained.

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

UNIT STANDARD ESSENTIAL EMBEDDED KNOWLEDGE

Examples of crop production practices which enhance environmental sustainability include mulching, crop rotation, stubble mulching, green manure, composting, etc. This list is not all inclusive.

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;

UNIT STANDARD CCFO WORKING

Work effectively with others as a member of a team, group organisation and community;

UNIT STANDARD CCFO ORGANIZING

Organise and manage oneself and one's activities responsibly and effectively;

UNIT STANDARD CCFO COLLECTING

Collect, analyse, organise and critically evaluate information;

UNIT STANDARD CCFO COMMUNICATING

Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation;

UNIT STANDARD CCFO DEMONSTRATING

Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

UNIT STANDARD NOTES

Learners should be encouraged to work in groups when identifying and observing the factors influencing crop production.

Developmental Outcomes:

This unit standard supports the following developmental outcomes:

1. Reflecting on and exploring a variety of strategies to learn more effectively;
2. Participating as responsible citizens in the life of local, national and global communities;
3. Being culturally and aesthetically sensitive across a range of social contexts;
4. Exploring education and career opportunities; and
5. Developing entrepreneurial opportunities.

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LEVEL 2.5.4**PLANT PRODUCTION**

TITLE	:	HARVEST AGRICULTURAL CROPS: PROCEDURES
SAQA	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	4
FIELD	:	AGRICULTURE AND CONSERVATION
SUB-FIELD	:	PRIMARY AGRICULTURE
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to harvest crops according to basic procedures making use of basic harvesting tools.

Learners will gain specific knowledge and skills in harvesting techniques and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 1: Harvest agricultural crops.

NQF 2: Utilise and perform minor repair and maintenance tasks on implements, equipment and infrastructure.

NQF 1: Collect agricultural data.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Select and use appropriate tools / equipment for pre-determined harvesting method.
 2. Carry out sampling for maturity indexing according to established and familiar procedures.
 3. Harvest crops.
 4. Harvest crops considering the necessary health, hygiene and safety during the procedure.
 5. Ensure the disposal of waste requirements are adhered to.
 6. Care for and maintain equipment used.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Select and use appropriate tools / equipment for pre-determined harvesting method.

Range: Harvesting methods according to specific production context include, but are not limited to harvesting by hand, machine harvesting, etc.

Assessment criteria:

- 1.1 Tools that will be needed to harvest the particular crop is described.
(Range: Tools, according to specific production context include, but are not limited to hands, trays, crates, picking bags, shears, ladders, etc.)
- 1.2 The way to ensure that the harvesting equipment is in good working condition is explained.
- 1.3 The way tools will be used according to established and familiar industry procedures is demonstrated.

2. Carry out sampling for maturity indexing according to established and familiar procedures.

Range: Sampling may include, but are not limited to sampling by hand, etc. It may include but is not limited to, harvesting a given number or mass of the produce according to a specific plan.

Assessment criteria:

- 2.1 The way the sample will be harvested and how it will be handled (processed) is explained.
- 2.2 The way to harvest the sample and process it is demonstrated.

- 2.3 The reason for taking a sample is explained.
- 2.4 Your understanding of the routine with which the sample has to be taken is explained.

3. Harvest crops.

Range: Familiar procedures include, but are not limited to quality specifications, maturity specifications, etc.

Assessment criteria:

- 3.1 Harvesting procedure for the specific crop is explained.
- 3.2 The basic maturity level of the crops as advised is described.
- 3.3 The handling of the harvested crop immediately after harvesting is described.
- 3.4 Any specifications which need to be followed as advised is explained.
(Range: specifications include but are not limited to remove from direct sunlight, rain, do not throw, watch speed of harvester etc).

4. Harvest crops considering the necessary health, hygiene and safety during the procedure.

Range: Health, safety and hygiene include but are not limited to clean hands, sterilized equipment, covered hair, covered wounds, report open wounds etc.

Assessment criteria:

- 4.1 The use of safety clothes or gear according to prescribed procedures is demonstrated.
 - 4.2 The different personal hygiene practices that must be implemented at all times are explained.
 - 4.3 When it is necessary to disclose certain aspects of personal health is described.
 - 4.4 The reason why certain hygiene procedures must be followed is explained.
 - 4.5 The process of reporting when conditions are not according to the standards prescribed is described.
5. Ensure the collection and transportation of waste.

Range: Waste includes, but is not limited to any biodegradable or non biodegradable materials that are not accepted as the primary product. Biodegradable materials include parts of plants, fruit, flowers, etc. Non-biodegradable materials include, but are not limited to plastics, glass, metals, etc.

Assessment criteria:

- 5.1 The way waste is dealt with according to specific procedures is described.
- 5.2 The process with which the waste is processed according to the different categories is explained.
- 5.3 The reason it is important to dispose of waste in a prescribed and particular fashion is explained.

- 5.4 The plan that you are given to process the waste from the particular agricultural enterprise is described.
- 5.5 The records that are kept of the waste and how it is disposed of is described.
(Range: Record refers to keeping of data, e.g. counting of loads, volumes, where disposed of and how etc.)
5. Care and maintain equipment used in cooperation with, and guiding others.
- Range:** Care and maintaining of equipment may include but is not limited to cleaning sterilizing, oiling sharpening etc of hand tools, machinery, power tools etc.

Assessment criteria:

- 6.1 Caring for equipment according to procedures is described.
- 6.2 The importance of cleaning and caring for the equipment is explained.
- 6.3 The place and way of storing equipment is described.
- 6.4 The way of dealing with defaults in equipment is explained.
- 6.5 The routine and basic procedures that are dealt with at particular level is explained.
- 6.6 The way in which problems are reported and recorded is discussed.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes

but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** relates to specific outcomes 3 and 4.
2. **Self-development:** relates to specific outcomes 1 to 6.
3. **Communication:** relates to specific outcomes 1 to 6.
4. **Information interpretation:** relates to specific outcomes 1 to 6.
5. **Inter-relatedness of Systems:** relates to specific outcomes 2, 4, 5 and 6.
6. **Problem Solving:** relates to specific outcomes 1 to 6.
7. **Self-Management:** relates to specific outcomes 1 to 6.
8. **Use science and technology:** relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The principles of harvesting a crop.

2. Names and functions of tools and materials for the harvesting process.
3. Safe handling procedures of tools and materials utilised.
4. The various harvesting methods.
5. Plant physiology and anatomy required for the harvesting of different crops.
6. Importance of harvesting area being clean from waste material.
7. Occupational Health and Safety and other applicable legislation.
8. Use of sensory cues to show harvest readiness.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.5.5**PLANT PRODUCTION****TITLE: OPERATE AND MAINTAIN SPECIFIC IRRIGATION SYSTEMS**

SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this Unit Standard will be able to, under supervision, efficiently irrigate a variety of crops, using a specific type of irrigation system. He will also be able to carry out relevant basic operational and maintenance procedures.

Learners will gain specific knowledge and skills in irrigation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: Operate and maintain irrigation systems.

NQF 2: Utilise and perform minor repairs and maintenance tasks on implements, equipment and infrastructure.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Perform pre-start up inspection applicable to the relevant irrigation system.
2. Perform start-up and shutdown procedures applicable to the relevant irrigation system.
3. Irrigate crop according to given guidelines.
4. Care and maintain equipment and tools used during irrigation.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Perform pre-start up inspection applicable to the relevant irrigation system.

Range: Includes but is not limited to routine pump/motor/filter maintenance (grease/oil/cleaning), checking if water available in rivers, dams, canals, etc., checking for water leaks, differences in pressure, valve status (open/closed).

Assessment criteria:

- 1.1 The ability to identify whether there is sufficient water available is demonstrated.
(Range: Rivers, dams, canals, etc.)
- 1.2 The ability to check oil levels and grease pumps is demonstrated.
- 1.3 The ability to identify and clean in-line filters and pumps, frog catchers, etc. is demonstrated.
- 1.4 In-line filters, pumps and valves are checked to ensure they are in good working condition.
- 1.5 The ability to identify and report defects in pre-start up inspection is demonstrated.
(Range: Valves cannot open/close, pumps visibly defective, etc.)
- 1.6 Pumps are fully primed.

- 2 Perform start-up and shut down procedures applicable to specific irrigation system.

Range: Includes but is not limited to monitors revs, amps, kW, flow and pressure readings, checking for leakages, identifying motor/pump defects (noisy bearings), etc.

Assessment criteria:

- 2.1 Pump is started/shut down in stages according to prescribed procedure.

- 2.2 Ability to indicate the correct motor/pump working characteristics is demonstrated.
(Range: Indicating the correct amps/working pressure, flow rate, etc.)
 - 2.3 Pressure control valves opened/closed according to prescribed norms.
 - 2.4 Unexpected problems identified and corrective action taken.
(Range: Unusual pump vibration/bearing noise, leakages – pump/motor immediately shut down – problem reported to supervisor.)
 - 2.5 In-field valves opened/closed and flow rate set according to schedule.
 - 2.6 In-field pressure measured and corrected if required.
 - 2.7 Pressure of in-line filters checked and remedial action [cleaning of filter] taken.
- 3 Irrigate crop according to given guidelines.

Range: Includes but is not limited to standard operating procedures such as fixing, repairing and reporting of non-conformance of equipment. Quality checks can include but are not limited to checking the irrigation system for leakages, overlapping, dry spots and blocked nozzles, etc.

Assessment criteria:

- 3.1 Quality checks of relevant irrigation systems are performed and corrective actions are taken according to standard operating procedures.
 - 3.2 Irrigation cycle for designated area/block is started and completed on time, as prescribed for the specific crop.
 - 3.3 Regular monitoring of operational parameters are carried out.
(Range: Blockages, leaks, pressure drops, etc.)
- 4 Care and maintenance of equipment and tools used during irrigation.

Range: Includes but is not limited to pipes, pressure gauges, nozzles, pliers, filters, flow gauges, etc.

Assessment criteria:

- 4.1 Filters are flushed/cleaned as per operating instructions.
- 4.2 Tools are cleaned, maintained and stored according to standard operating procedures.
- 4.3 Defective tools and/or equipment, problems and unusual events are reported to the supervisor.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

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Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
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RANGE STATEMENT

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CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Teamwork** relates to specific outcomes 1-4.
3. **Self-organisation and management** relates to specific outcomes 1-4.
4. **Information evaluation** relates to specific outcomes 1-4.

5. **Communication** relates to specific outcomes 1-4.
6. **Use science and technology** relates to specific outcomes 1-4.
7. **Inter-relatedness of systems** relates to specific outcomes 1-4.
8. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Occupational Health and Safety Act.
2. Tools and equipment used during irrigation.
3. Attributes of all tools and equipment used e.g. pumps, pressure gauge, valves, etc.
4. Auditory perceptions of non-conformance of e.g. pumps.
5. Visual perceptions of non-conformance e.g. smoke coming from pumps.
6. Implications of not reporting defective equipment and tools.
7. Implications of mist spray, over- and/or under irrigation, over- and/or under pressure of pumps.
8. Routine irrigation system operational and maintenance procedures.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.5.6**PLANT PRODUCTION**

TITLE	:	APPLY PLANT MANIPULATION METHODS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to train (manipulate) plants by applying a narrow range of techniques, as well as providing limited guidance to others. This unit standard builds on the learner's skills and capacity to apply plant manipulation in a production environment and use this to contribute towards to overall productivity of a production enterprise by maximizing growth and yield.

Learners will gain specific knowledge and skills in plant manipulation techniques and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 1: Manipulate plants.

NQF 2: Understand the structure and functions of a plant.

NQF 1: Select, use and care for hand tools and basic equipment and infrastructure.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Demonstrate an understanding of the selection and use of appropriate tools and equipment for a pre-determined manipulation method.
 2. Illustrate a basic knowledge of framework development principles as part of plant manipulation methods.
 3. Demonstrate an intermediate understanding of flower and fruit manipulation principles.
 4. Illustrate a basic knowledge pruning principles as vegetative plant manipulation methods appropriate to the crop
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of the selection and use of appropriate tools and equipment for a pre-determined manipulation method

Range: Manipulation methods may include, but are not limited to, framework development, flower and fruit manipulation, and pruning. Tools may include, but are not limited to, pruning shears, tie-back material, trellising and spraying equipment.

Assessment criteria:

- 1.1 The correct tools and materials to use in two or more pre-determined manipulation methods for specified crops are selected.
 - 1.2 The appropriate plant growth stages are identified for the pre-determined and specified manipulation methods are identified and explained.
 - 1.3 The pre-determined and specified manipulation methods are carried out correctly.
 - 1.4 The tools and equipment required for the manipulation methods are used correctly and hygienically.
2. Illustrate a basic knowledge of framework development principles as part of plant manipulation methods.

Range: Trellising methods may include, but are not limited to, Central leader system, Tatura system, two-wire system, slanted cap, factory-cap, and the Façade system.

Assessment criteria:

- 2.1. Trellising principles are explained as applied to two or more agricultural crops.
- 2.2 The heights of stems are correctly identified and explained as relevant for two or more agricultural crops.

- 2.3 The purpose of the framework structure in optimising harvest and yield is explained correctly.
3. Demonstrate an intermediate understanding of flower and fruit manipulation principles

Range: Flower and fruit manipulation principles may include, but are not limited to, temperature, daylight length, bud dormancy breakers, thinning, fruit enlargement, ripening, and the preparation of physical and chemical quality improvement methods.

Assessment criteria:

- 3.1 The purpose and benefits of fruit and flower manipulation are explained.
- 3.2 The process and purpose of using chemicals for flower and fruit manipulation is explained and shown.
- 3.3 The process of physical manipulation on the fruit and flowers of two or more plant crops is shown and explained.
(Range: Physical manipulation includes, but is not limited to thinning, shouldering, brushing, shortening, etc.)

4. Illustrate a basic knowledge pruning principles as a vegetative plant manipulation method appropriate to the crop

Range: Pruning includes, but is not limited to summer and winter pruning, canopy management, etc. appropriate to the crop.

Assessment criteria:

- 4.1 Unwanted growth from plant at the different growing stages of two or more crop plants are identified and removed.
- 4.2 Turpose and benefit of vegetative manipulation and pruning principles as it relates to the health of plants and crop yields are explained.
(Range: vegetative manipulation includes but is not limited to winter pruning, summer pruning, canopy management, trellising of shoots, etc.)
- 4.2 The vegetative manipulation actions of another learner are supported and guided.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving** relates to specific outcomes 1 to 4.
2. **Self-Management** relates to specific outcomes 1 to 4.
3. **Interpreting Information** relates to specific outcomes 1 to 4.
4. **Communication relates** to specific outcomes 1 to 4.
5. **Use Science and Technology** relates to specific outcomes 2, 3 and 4.
6. **Self-development** relates to specific outcomes 1 to 4.
7. **Teamwork:** relates to all specific outcomes.
8. **Inter relatedness:** relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of the tools required for manipulation of plants.
2. Names and functions of the different trellising methods.
3. Flower manipulation and fruit manipulation methods.
4. The principles of pruning methods.
5. The principles of manipulation of a plant.
6. Names and functions of tools and materials.
7. Safety and handling procedures of tools and material.
8. Maintaining hygienic procedures of tools and material as to prevent spreading of diseases.
9. Plant physiology and anatomy applicable to manipulation.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.5.7**PLANT PRODUCTION**

TITLE	:	CONTROL PESTS, DISEASES AND WEEDS ON ALL CROPS EFFECTIVELY AND RESPONSIBLY
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDITS	:	2
FIELD	:	Agriculture and nature conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE:

A learner achieving this unit standard will be able to recognize common insects, disease symptoms and weeds and apply basic control measures as per agricultural enterprise.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of pest control practices in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instill a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE:

It is assumed that the learner should show competence in basic literacy and numeracy as well as competence in unit standard "Recognise pests and diseases and weeds on crops" NQF 1 or equivalent.

SPECIFIC OUTCOME:

A person assessed as competent against this unit standard will be able to:

1. Recognize and report on common insects associated with the specific agricultural enterprise.
 2. Recognize common symptoms of diseases.
 3. Identify by common name the types of weeds present in the field.
 4. Observe and distinguish between old and new damage and report.
 5. Notice and assist with monitoring of pests (scouting) and explaining if pest levels have not decreased after spraying or other control measures were applied.
-

SPECIFIC OUTCOME AND ASSESSMENT CRITERIA:

1. Recognize and report on common insects associated with the specific agricultural enterprise.

Range: (Common insects include but are not limited to the insects (pests and predators) generally associated with the specific crop).

Assessment Criteria:

- 1.1 Common insects and whether it is pest or predator (beneficial) is identified and described.
- 1.2 The types of damage the insects will cause are described.
- 1.3 The effect of the predator (beneficial) is discussed.
- 1.4 Possible control measures or the control measure as advised is described.

2. Recognize common symptoms of diseases.

Range: Common symptoms of disease could include but are not limited to disease markings, wilting, discoloration of plant material, gum formation, dieback of branches, stems or plants etc.

Assessment Criteria:

- 1.1 The symptoms of the most common diseases associated with the agricultural enterprises are described
- 1.2 The possible effects the disease could have on the product are described.
- 1.3 The most common control methods that could be applied to the disease are described.
- 1.4 The way in which the disease could be prevented is explained.

3. Identify by common name the types of weeds present in the field.

Range: Weeds include but are not limited to those plants growing which is not part of the production enterprise.

Assessment Criteria:

- 3.1 Definition of a weed is explained.
- 3.2 The most common weeds found in the agricultural enterprise are identified.
- 3.3 The different methods of controlling weeds are described.
- 4.
5. Old and new damage is observed and distinguished between and reported on.

Assessment Criteria:

- 5.1 The implications of the presence of new damage are explained.
- 5.2 The circumstances under which new damage can be expected are explained.

6. Notice and assist with monitoring of pests (scouting) and explaining if pest levels have not decreased after spraying or other control measures were applied.

Assessment Criteria:

- 6.1 Pest levels that cause economic loss are explained.
- 6.2 Whether pest levels have decreased to an acceptable level are observed.
- 6.3 Findings are recorded.
- 6.4 Hygiene measures are applied (personal, equipment, and environment.)

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The specific outcomes must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed in relation to each other. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their

performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified critical cross-field outcomes should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of these values.

Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.

Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA. Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** relates to specific outcomes 1 to 5.
2. **Self-Management:** relates to specific outcomes 1 to 5.
3. **Interpreting Information:** relates to specific outcomes 1 to 5.
4. **Communication:** relates to specific outcomes 1 to 5.
5. **Science and Technology:** relates to specific outcomes 1 to 5.
6. **The world as a set of related systems:** relates to specific outcomes 1 to 5.
7. **Self-development:** relates to specific outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Insect anatomy.

2. Categories and types of pests.
3. Pest levels that cause economic loss.
4. Common plant diseases.
5. Common pests.
6. Common predators.
7. Common beneficial insects.
8. Common diseases.
9. Life cycle of an insect.
10. Natural enemies.
11. Ways of spreading.
12. Contamination.
13. Implication of contamination on the quality and marketability of the product.
14. Importance of hygiene.
15. Scouting procedures.

SUPPLEMENTARY INFORMATION

NOTES

Other information regarding these subjects is contained in the unit standards dealing with animal anatomy and physiology.

END

LEVEL 2.5.8**PLANT PRODUCTION**

TITLE	:	DEMONSTRATE AN UNDERSTANDING OF PLANT PROPAGATION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will have the ability to propagate plants.

Learners will gain specific knowledge and skills in plant propagation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 1: The propagation of plants.

NQF 2: Basic soil fertility and plant nutrition.

NQF 2: Utilise and perform minor repair and maintenance tasks on implements, equipment and infrastructure.

NQF 1: Collect agricultural data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard unit will be able to:

1. Recognise the environmental requirements for propagation in a specific agricultural production context.

2. Identify appropriate propagation methods and applicable tools for specific agricultural production systems.
 3. Distinguish between successful and unsuccessful propagation under specific agricultural production context.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Recognise the environmental requirements for propagation in a specific agricultural production context.

Range: The environmental needs may include but are not limited to humidity, ventilation, temperature, light intensity, moisture, etc.

Assessment criteria:

- 1.1 Suitable humidity levels for propagation of a specific agricultural production system are described.
- 1.2 Suitable ventilation for the propagation of a specific agricultural production system is defined.
- 1.3 The ability to distinguish between direct and indirect sunlight requirements are demonstrated.
- 1.4 The suitable moisture levels of growth media are described.

2. Identify appropriate propagation methods, applicable tools and equipment for specific agricultural production systems.

Range: Propagation methods include but are not limited to direct sowing, seeding tray, seed bed, vegetative cuttings of rhizomes, corms, tubers, scaling of bulbs and tissue culture, budding, grafting and layering. Appropriate tools include but are not limited to pruning shears, budding knives etc. while equipment could include heating, cooling, hydration etc.

Assessment criteria:

- 2.1 The appropriate method for the propagation of a specific crop is described.
 - 2.2 The appropriate tools for a propagation method are selected.
 - 2.3 The safe and proper use of the applicable tools is demonstrated.
 - 2.4 The necessary hygiene requirements applicable to the appropriate methods used are described.
 - 2.5 The basic troubleshooting of equipment is described.
3. Distinguish between successful and unsuccessful propagation under specific agricultural production context

Range: Success indicators include but are not limited to root development, germination of seed, bud / graft union, shoot development, etc.

Assessment criteria:

- 3.1 The indicators for successful propagation of a specific crop are described.
- 3.2 Indicators of unsuccessful propagation are described.
- 3.3 The necessary environmental factors for successful propagation are explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** Relates to specific outcome 2.
2. **Self-Management:** Relates to all outcomes.
3. **Interpreting Information:** Relates to all outcomes.
4. **Communication:** Relates to all outcomes.
5. **Use Science and Technology:** Relates to all outcomes.
6. **The world as a set of related systems:** Relates to all outcomes.
7. **Self-development:** Related to all outcomes.
8. **Problem solving:** Related to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic safety requirements related to the propagation environment and procedures.
2. Basic hygiene requirements for the propagation environments.
3. Growing media – wet and dry.
4. Weeds, pest and diseases.
5. Nomenclature related to all aspects of plant propagation.
6. Sensory cues related to the various aspects of plant propagation
7. The purpose of learning about plant propagation.
8. All procedures, legislation, rules and codes of conduct pertaining to plant propagation.
9. All procedures related to the propagation of plants.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.5.9**PLANT PRODUCTION**

TITLE	:	UNDERSTAND BASIC SOIL FERTILITY AND PLANT NUTRITION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	2
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to apply basic soil nutrient preparations in a safe, effective and responsible manner for the benefit of plant/crop growth with consideration to the environment.

Learners will gain specific knowledge and skills in soil nutrient and preparation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standards or equivalent:

NQF 1: Fertilise soil and attend to basic plant nutrition.

NQF 1: Collect agricultural data.

NQF 2: Demonstrate a basic understanding of the structure and functions of a plant.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Accurately prepare and measure the appropriate quantity and quality of required soil nutrient applications
 2. Take an appropriate sample for nutrient analysis
 3. Understand the properties of soil and soil composition
 4. Identify and interpret the basic symptoms of nutritional deficiencies in crops.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Accurately prepare and measure the appropriate quantity and quality of required soil nutrient preparations.

Range: Soil nutrient preparations refer to either agro-chemical or organic production methods. These can include preparation of compost and liquid nutrients, management of lime, single or mixed fertilizers, or other substances.

Assessment criteria:

- 1.1 The ability to identify the appropriate nutrients for a specific context is demonstrated.
- 1.2 The ability to prepare and collect the correct amount of the appropriate nutrients from the storage area of an agricultural production environment is demonstrated (in the case of conventional systems, this would involve selecting the appropriate fertiliser; for organic systems it would involve storing manure optimally and making compost with due understanding of the processes outlined in the NQF 1 unit standard).
- 1.3 The ability to measure the required amount of soil nutrient accurately is demonstrated.

2. Take an appropriate sample for nutrient analysis.

Range: A sample refers, but is not limited to leaf, soil and fruit analysis samples.

Assessment criteria:

- 2.1 An appropriate sample is taken according to prescribed procedures.
- 2.2 The sample is labelled according to required procedures.
- 2.3 The sample is prepared and packaged according to specified procedures.

3. Understand the properties of soil and soil composition.

Range: Soil properties refer to the texture and structure, water holding and drainage capacity, and soil composition in terms of silt/clay/gravel ratios. Soil composition refers to the basic mineral content of soil. These should be related to the basic interaction between soil composition and productivity.

Assessment criteria:

- 3.1 Soil structure and texture are identified using elementary tests and observations, and based on this information the learner is able to express an opinion on its condition and remediation.
- 3.2 The composition of soil based on elementary tests and observations is identified and, based on these results, an opinion regarding the condition of the soil and its fertility requirements is demonstrated
- 3.3 The role of minerals in soil health and how this relates to plant production is described.

4. Identify and interpret the basic symptoms of nutritional deficiencies in crops.

Range: Different crops may include (among others) field crops and horticultural crops. Macro elements may include (among others) Nitrogen, Phosphorous Potassium and Calcium.

Assessment criteria:

- 4.1 The colour change on plant leaves, and/or fruit/ plant abnormalities, is interpreted and related to the specific macro-element deficiencies compared with healthy plants.
- 4.2 Steps are taken (or explain the steps needed) to rectify basic deficiencies.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to all specific outcomes.
2. **Teamwork:** Relates to all specific outcomes.
3. **Self-management:** Relates to all specific outcomes.
4. **Interpreting Information:** Relates to all specific outcomes.
5. **Communication:** Relates to all specific outcomes.
6. **Use Science and Technology:** Relates to all specific outcomes.
7. **The world as a set of related systems:** Relates to all specific outcomes.
8. **Self-development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Fertilisers, mixtures, single, etc. if appropriate.
2. Nutrient sources such as organic, compost, etc.
3. Soil conservation.
4. Soil preparation and improvement.
5. Basic ecological principles.
6. Sampling (soil, leaf, and fruit).
7. Basic soil properties.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.6.1**ELECTIVE****TITLE: EXPLAIN DAIRY PRODUCTION CLEANLINESS**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL: 2

CREDITS: 5

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE:

The learner achieving this unit standard will be able to identify and mix suitable cleaning materials, know the need for rapid cooling, have sensory identification of tainting of milk, be able to make use of different milking methods and clean milk equipment. In addition they will be well positioned to extend their learning and practice into other areas of agriculture, food production and animal production.

Learners will gain specific knowledge and skills in dairy production and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Within the context of application, milking methods include but are not limited to hand milking and milking machines, whichever is applicable to the area of operation. All range statements should be interpreted as relevant to the context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF1: Apply basic dairy production practices.

NQF 2: Observe and inspect animal health.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Identify, mix and use suitable cleaning materials.
 2. State the importance of rapid cooling of freshly drawn milk.
 3. Demonstrate the ability to assess milk quality.
 4. Demonstrate the ability to make use of different milking methods.
 5. Demonstrate the ability to clean milking equipment effectively.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify, mix and use suitable cleaning materials

Assessment criteria:

- 1.1 The ability to identify and select cleaning materials for different purposes according to the label is demonstrated.
- 1.2 The ability to mix the correct dilution is demonstrated.
- 1.3 The ability to correctly utilize and apply cleaning materials and mixes is demonstrated.

2. State the importance of rapid cooling of freshly drawn milk.

Assessment criteria:

- 2.1 The purpose and causes for preserving milk by rapid cooling is identified.
 - 2.2 The ability to apply rapid cooling methods in sequence is demonstrated.
 - 2.3 The ability to read and identify the target milk temperature within a definite time is demonstrated.
 - 2.4 The ability to report observations and identify deviations is demonstrated.
3. Demonstrate the ability to assess milk quality.

Assessment Criteria:

- 3.1 The ability to identify abnormal odours in milk is demonstrated.
- 3.2 The ability to identify abnormal colour of milk is demonstrated.
- 3.3 The ability to identify abnormal structure of milk is demonstrated.
- 3.3 The ability to report observations is demonstrated.

- 4. Demonstrate the ability to make use of different milking methods.

Range: Different milking methods include but are not limited to hand milking and the use of milk machines, as applicable to the context of application.

Assessment Criteria:

- 4.1 The ability to clean the animal's udder effectively is demonstrated.
- 4.2 The ability to perform preventative cleaning of the milking operator is demonstrated.
- 4.2 The ability to rinse out teat cups prior to attachment is demonstrated.
- 4.3 The ability to carry out a simple mastitis test on each teat is demonstrated.
- 4.4 The ability to treat cracked teats before and after milking is demonstrated.
- 4.5 The ability to recognize and report any possible udder infections or injuries is demonstrated.
- 4.6 The ability to attach each teat cup securely is demonstrated.
- 4.7 The ability to remove all milk from each section of the udder is demonstrated.
- 4.8 The ability to complete the milking process within specific time limits is demonstrated.

- 5. Demonstrate the ability to clean the milk equipment effectively.

Assessment Criteria:

- 5.1 The ability to disassemble and reassemble simpler sections of the milk equipment is demonstrated.
- 5.2 The ability of to know the correct application point for cleansing chemicals is demonstrated
- 5.3 The ability to identify worn parts and to replace them is demonstrated
- 5.4 The ability to identify problems and deviations and to report thereon it is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may

include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to outcome 1.
2. **Self-management** relates to outcomes 1-5.
3. **Communication** relates to outcomes 1-5.
4. **Interpreting information** relates to outcome 1.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and the functions of the different parts of the milking equipment.
2. Sensory cues or symptoms related to milk quality.
3. The purpose of the observations to be made.
4. The procedures involved in the observations to be made.
5. All applicable rules and codes of conduct relating to the handling and observation of animals.
6. Developing a two-way relationship with supervisor and co-workers in regard to responsibilities and reporting (Communication Skills).

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.6.2**ELECTIVE****TITLE:****CONSIDER PLANT BOTANY DURING THE
PLACEMENT OF BEE HIVES**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

2

CREDIT

:

2

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

The learner achieving this unit standard will be able to understand and evaluate nutritional resources for bees as found in various plants in environmental niches. In addition they will be well positioned to extend their learning and practice into other areas of beekeeping.

Learners will gain specific knowledge and skills in bee keeping practices and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standard or equivalent:

NQF 1: Understand the basic practices of beekeeping and the benefit thereof for agriculture.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify the estimated qualitative and quantitative nutritional value of various plants, providing nutrition for bees.
 2. Identify the environmental requirements of various plants that provide nutrition for bees.
 3. Observe, illustrate and report on observations regarding bees foraging on specific plants for specific nutritional sources where they grow within environmental niches over time.
 4. Expand the knowledge and range of names, identification and potential of known important qualitative and quantitative nutritional resource plants for bees.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify the estimated qualitative and quantitative nutritional value of various plants providing nutrition for bees.

Range: Bee plants include but are not limited to nectar, pollen and propolis producing trees, shrubs (including aquatic plants, perennial herbs, shrublets and succulents), weeds, crop plants (commercial and garden), creepers and semi-climbers, annuals and biennials, bulbous plants (corms, rhizomes and tubers), ground covers, eucalypts.

Bee nutrition sources include but are not limited to plant-sap, nectar, honeydew, pollen, propolis.

Assessment criteria:

- 1.1 The ability to identify, evaluate and illustrate various bee plants at potential, proposed or existing beekeeping sites and in other environmental niches is demonstrated.
 - 1.2 The ability to identify, demonstrate and illustrate estimates of the qualitative nutritional value of these various bee plants is demonstrated.
 - 1.3 The ability to identify, demonstrate and illustrate estimates of the quantitative nutritional value of these various bee plants is demonstrated.
2. Identify the environmental requirements of various plants that provide nutrition for bees.

Range: Environmental requirements include but are not limited to the soil type and structure, soil moisture and atmospheric moisture requirements, pH, wind tolerance, proximity of other vegetation, etc.

Assessment criteria:

- 2.1 Bee plants are evaluated in their environment and their environmental requirements in situ are assessed.
 - 2.2 Bee plants are evaluated in the literature to determine their environmental requirements.
 - 2.3 The role of various environmental influences on the qualitative and quantitative production of bee forage is identified.
3. Observe, illustrate and report on observations regarding bees foraging on specific plants for specific nutritional sources where they grow within environmental niches over time.

Range: Bee plants include but are not limited to nectar, pollen and propolis producing trees, shrubs (including aquatic plants, perennial herbs, shrublets and succulents), weeds, crop plants (commercial and garden), creepers and semi-climbers, annuals and biennials, bulbous plants (corms, rhizomes and tubers), ground covers, eucalypts.

Assessment criteria:

- 3.1 The flight of bees foraging on various plants and plant parts are understood, described and illustrated.
 - 3.2 The activities of bees foraging on the various plant parts are described.
 - 3.3 The attractiveness of the specific bee plant to bees is estimated.
 - 3.4 The value of the plant as a source for bee nutrition based on the observations made is estimated.
4. Expand the knowledge and range of names, identification and potential of known important qualitative and quantitative nutritional resource plants for nectar, pollen and propolis production.

Range: Plants include but are not limited to flowering trees, shrubs (including aquatic plants, perennial herbs, shrublets and succulents), weeds, crop plants (commercial and garden), creepers and semi-climbers, annuals and biennials, bulbous plants (corms, rhizomes and tubers), ground covers, eucalypts.

Assessment criteria:

- 4.1 The literature is observed, studied and scanned regarding the quantitative nutritional value of plants for bees.
- 4.2 The literature is observed, studied and scanned regarding the qualitative nutritional value of plants for bees.
- 4.2 The literature is observed, studied and scanned regarding the identification of important pollen and nectar producing flora.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 4.
2. **Teamwork:** relates to specific outcome 2.
3. **Self-Organisation and Management:** relates to specific outcomes 1 to 4.
4. **Communication:** relates to specific outcomes 2 and 3.
5. **Personal Development:** relates to specific outcomes 1 to 4.
6. **Interpretation of information:** relates to specific outcomes 1 to 4.
7. **The world as a set:** relates to specific outcomes 1 to 4.
8. **Science and technology:** relates to specific outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific nectar and pollen bearing plant species.
2. Origin of nectar, pollen and propolis.
3. Bee plant botany.
4. Sensory observation and evaluation of bee plants over time.
5. Observation of bee visits to various plants over time.
6. Evaluation of the potential of bee plants for production.
7. Bee plant classification, nomenclature and common name terms.
8. The purpose of learning about bee plants and botany.
9. Bee nutrition.
10. Plant / bee symbiosis.
11. Basic record keeping.
12. Observation of sensory cues in plants and bees.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.6.3**ELECTIVE****TITLE:****PARTICIPATE IN AGR/ECOTOURISM
PRACTICES AT BOTH MICRO AND MESO
LEVELS TO TOURISTS**

SAQA

:

UNIT STANDARD LEVEL

: 2

CREDIT

: 4

FIELD

: AGRICULTURE AND CONSERVATION

SUB-FIELD

: PRIMARY AGRICULTURE

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

The learner achieving this unit standard will be able to demonstrate an ability to understand and communicate basic information about the activities, operations and attractions of Tourism and Agriculture at micro and meso levels to tourists.

In addition learners will be well positioned to extend their learning and practice into other areas of agriculture, or to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural practices and aspects of tourism as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 1: Demonstrate an understanding of agri/eco tourism as a system at micro level.

SPECIFIC OUTCOMES]

A person assessed as competent against this standard will be able to:

1. Put the farm/reserve into a meso-level context – that is to be able to integrate the farm within its immediate wider environment.
 2. Identify and distinguish between the needs of tourists at micro and meso level.
 3. Identify and locate tourism infrastructure, attractions and activities on the agri/eco-site and local (meso) environment and conduct a limited guided experience within these parameters.
 4. Describe operational, organizational (social) and tourism practices on the Agri/Eco site and at meso level.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Put the farm/reserve into a meso-level context – that is to be able to integrate the farm within its immediate wider environment.

Range: Farming/conservation/environmental operations at micro and meso levels.

Assessment criteria:

- 1.1 An understanding of the farm/reserve within its geographical environment (up to meso level) is demonstrated.
- 1.2 An understanding of the farm/reserve within its social/community environment (up to meso level) is demonstrated.
- 1.3 An understanding of the farm/reserve within its wider economic environment (up to meso level) is demonstrated.
- 1.4 An understanding of the farm/reserve within its wider cultural and historical environment (up to meso level) is demonstrated.

2. Identify and distinguish between the needs of tourists at micro and meso level.

Range: Socio-economic needs, educational needs, cultural needs, etc. Restricted to micro and meso levels.

Assessment criteria:

- 2.1 An awareness of various social needs of the different Agri/Ecotourists within a micro and meso level context is demonstrated.
- 2.2 An awareness of various economical needs of the different Agri/Ecotourists within a micro and meso level context is demonstrated.

- 2.3 An awareness of various safety and security needs of the different Agri/Ecotourists within a micro and meso level context is demonstrated.
- 2.3 An awareness of various cultural and educational needs of the different Agri/Ecotourists within a micro and meso level context is demonstrated.

- 3. Identify and locate tourism infrastructure, attractions and activities on the agri/eco-site and local (meso) environment and conduct a limited guided experience within these parameters.

Range: Natural and man-made attractions on site and at local (meso) levels.

Assessment criteria:

- 3.1 An awareness of Tourism infrastructure at the farm/reserve and meso levels and the ability to direct people to it is demonstrated.
- 3.2 An awareness of tourism attractions at the farm/reserve and meso levels and the ability to direct people to it is demonstrated.
- 3.3 The ability to conduct a limited guided experience to the attractions and activities on the agri/eco site and local (meso) level is demonstrated.

- 4. Describe operational, organizational (social) and tourism practices on the Agri/Eco site and at meso level.

Range: Micro (farm/reserve) and meso-level/environment.

Assessment criteria:

- 4.1 The ability to explain agricultural/environmental practices and operations within the micro and meso-environments to tourists is demonstrated.
- 4.2 The ability to explain organizational arrangements of enterprises in the micro and meso-environment is demonstrated.
- 4.3 The ability to explain tourism practices of farm/reserve in the micro and meso-environment is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem-solving** relates to specific outcomes 1-4.
2. **Teamwork** relates to specific outcomes 1-4.

3. **Self-organization and management** relates to specific outcomes 1-4.
4. **Information evaluation** relates to specific outcomes 1-4.
5. **Communication** relates to specific outcomes 1-4.
6. **Use science and technology** relates to specific outcomes 1-4.
7. **Inter-relatedness of systems** relates to specific outcomes 1-4.
8. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Different categories of tourists.
2. Different needs of tourists (e.g. health & hygiene, safety & security, adventure, leisure).
3. Knowledge of attractions and activities needed by tourists at meso-level.
4. Infrastructure: Layout needed by tourists.
5. Type of Agri/Ecotourism enterprises and destinations.
6. An understanding of agricultural and conservation practices on farm/reserve and meso levels.
7. Partaking in limited guiding experience up to meso level.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.6.4**ELECTIVE****TITLE:****PREPARE A SHEARING SHED FOR SHEARING**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

2

CREDIT

:

3

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A learner achieving this unit standard will be able to prepare a shearing shed for shearing, prepare the shearing equipment and check for any deficiencies in the shed.

Learners will gain specific knowledge and skills in animal production practices and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No previous learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Describe the process to be followed to clean the shearing shed under supervision
 2. Recognise the different potential contaminant materials that can cause contamination problems in a shearing shed
 3. Organise and place shearing equipment correctly to ensure a streamlined shearing process
 4. Observe and report any structural deficiencies of the shed prior to the shearing process
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Describe the process to be followed to clean the shearing shed under supervision

Range:

Facilities include but is not limited to a permanent shearing shed e.g. storm facilities, garages, open shed, etc.

Assessment criteria

- 1.1 All material not related to the shearing process is to be removed from shearing shed
 - 1.2 Materials are removed and stored under safe, suitable conditions and according to type and function e.g. fertilizers, chemicals and feed
 - 1.3 The shed must then be swept and washed according to the standards prescribed by the supervisor
 - 1.4 The holding pens must be cleaned and suitable bedding provided prior to shearing
2. Recognise the different potential contaminant materials that can cause contamination problems in a shearing shed

Range:

Contaminated materials include but are not limited to plastic, synthetic fibres, stones, chemicals, etc.

Assessment criteria

- 2.1 Foreign material that can potentially contaminate fibre must be identified.
 - 2.2 The basic effects of contamination on the quality of fibres during processing is understood.
 - 2.3 Any observation of potential contaminants is reported to the supervisor.
 - 2.4 Assembling pen to be inspected for contaminated materials, cleaned appropriately and problems reported.
3. Organise and place shearing equipment correctly to ensure a streamlined shearing process

Range:

Shearing equipment includes but is not limited to shearing machines, presses, bins, tables, booms, platforms, etc.

Assessment criteria

- 3.1 The basic shearing process must be described and outlined
 - 3.2 The layout of the shearing shed must be described and illustrated
 - 3.3 Functions and purposes of all shearing equipment is explained
 - 3.4 All shearing equipment is arranged to optimise the shearing process
4. Observe and report any structural deficiencies of the shed prior to the shearing process

Range:

Structural deficiencies include but are not limited to the roof, windows, doors, floor, lights, etc.

Assessment criteria

- 4.1 Any structural deficiency that will impact negatively on the shearing process should be observed and recorded e.g. airflow, light, shelter from adverse weather conditions, etc.
- 4.2 The deficiency must be replaced and/or repaired according to the guidelines and procedures of the organisation
- 4.3 Other problems and/or new deficiencies must be continuously observed and reported during the shearing process

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

NOTES

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** relates to specific outcomes 1-4
2. **Problem solving:** relates to specific outcomes 1-4
3. **Self-management:** relates to specific outcomes 1-4
4. **Interpreting information:** relates to specific outcomes 1-4
5. **Communication:** relates to specific outcomes 1-4
6. **Self-development:** relates to specific outcomes 1-4

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and function of relevant equipment

2. Safe handling of material
3. Interpreting information
4. Self-development
5. Literacy and numeracy
6. Observation and reporting skills
7. Purpose that such training will improve the shearing process
8. The shearing process and procedures followed
9. Legislation and rules pertaining to shearing and the process

SUPPLEMENTARY INFORMATION

END

LEVEL 2.6.5**ELECTIVE****TITLE:****PERFORM ROUTINE OPERATIONS AND IDENTIFY BASIC PROBLEMS IN HYDROPONIC SYSTEMS**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

2

CREDIT

:

3

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A person achieving this unit standard will be able to perform routine operations under supervision and identify basic problems within a defined hydroponic production context.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 1: Perform basic routine operations in a defined hydroponic context.

NQF 2: Utilise and perform minor repairs and maintenance tasks on implements, equipment and infrastructure.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify various growing media.

2. Manipulate plants as per instruction in the hydroponic production system.
 3. Identify and report basic problems in the production system.
 4. Basically understand hydroponics.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify various growing media.

Range: The range of growing media to be identified include but are not limited to wood shavings, pine bank, peat, perlite, gravel, vermiculite, unica, rock wool, coconut peat, etc.

The identification should be limited to specific production contexts.

Assessment criteria:

- 1.1 The ability to identify different types of growing media is demonstrated.

2. Plants are manipulated as per instruction in the hydroponic production system.

Range: Manipulation includes but is not limited to pruning; trellising, spraying chemical manipulates/plant growth regulators as per instruction.

The range of crops includes but is not limited to vegetables and flowers.

Assessment criteria:

- 2.1 The ability to prune the crop appropriately is demonstrated.
- 2.2 The ability to trellis the crop appropriately is demonstrated.
- 2.3 The ability to spray the crop appropriately is demonstrated.

3. Identify and report basic problems in the production system.

Range: The range of basic problems includes but is not limited to blockages, leaks in the irrigations system, and visible problems in the crop e.g. wilting, pest and disease damage and problems in the structure.

Assessment criteria:

- 3.1 The ability to identify problems in the production system is demonstrated.
- 3.2 The ability to report problems is demonstrated.
- 3.3 The ability to differentiate between healthy and unhealthy looking plants is demonstrated.

4. Basic understanding of hydroponics.

Range: Basic concept of hydroponics is explained and bag versus bed culture identified.

Assessment criteria:

- 4.1 Hydroponic production is defined.
 - 4.2 Open and closed systems are identified.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 2.
2. **Teamwork:** relates to specific outcomes 1 to 2.
3. **Self-management:** relates to specific outcome 2.
4. **Interpreting Information:** relates to specific outcomes 1 to 2.
5. **Communication:** relates to specific outcome 2.
6. **Inter-relatedness of Systems:** relates to specific outcomes 1 to 2.
7. **Self-development:** relates to specific outcomes 1 to 2.
8. **Science and Technology:** relates to specific outcomes 1 to 2.
9. **The world as a set of related systems:** relates to specific outcomes 1 to 2.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic literacy and numeracy at NQF2.
2. Recognising healthy crops in the specific production environment.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.6.6**ELECTIVE****TITLE: INTRODUCE ORGANIC CERTIFICATION AND INTERNAL CONTROL SYSTEMS**

SAQA LOGO :
UNIT STANDARD NO :
UNIT STANDARD LEVEL : 2
CREDIT : 2
FIELD : Agriculture and Nature Conservation
SUB-FIELD : Primary Agriculture
ISSUE DATE :
REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to demonstrate an understanding of basic organic certification requirements and the functioning of Internal Control Systems and cultivate produce/crop, which meet the requirements.

Learners will gain specific knowledge and skills in organic production and will be able to operate in a plant and/or animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant and/or animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 1: Understand organic market requirements.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Be acquainted with the organic certification process.
 - 2 Understand the functioning of an Internal Control System.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Be acquainted with the organic certification process.

Range: Organic Regulations, management of internal control systems, functions of Internal Inspectors, and rules of Organic Farmers Associations, from the farmer's point of view.

Assessment Criteria:

- 1.1 A basic knowledge of organic certification requirements is demonstrated.
- 1.2 Familiarity with the process of organic farm inspection is demonstrated.

- 2 Understand the functioning of an Internal Control System.

Range: Role of the Internal Approvals Committee, Quality Control Officer, Internal inspector; contracts with farmers and pack-houses, quality management systems, record keeping, internal audit procedures and elementary fraud detection.

Assessment Criteria:

- 2.1.1 Familiarity with the duties of Internal Inspectors is demonstrated.
 - 2.1.2 The process of reporting to a Certification Body is described.
 - 2.1.3 Disciplinary measures that can be used to ensure compliance of farmers with the rules of the Farmers Association are described.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** relates to specific outcomes 1 and 2.

2. **Self-management:** relates to specific outcomes 1 and 2.
3. **Information interpretation:** relates to specific outcomes 1 and 2.
4. **Communication:** relates to specific outcomes 1 and 2.
5. **Inter-relatedness of systems:** relates to specific outcomes 1 and 2.
6. **Self-development:** relates to specific outcomes 1 and 2.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Preparing for the Inspector's visit by ensuring that the farm is run organically.
2. Collecting information.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.6.7**ELECTIVE****TITLE:****INTERPRET AND ILLUSTRATE
PERMACULTURE PRINCIPLES**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

2

CREDIT

:

5

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

Learning in the field of Permaculture is provided for in this unit standard. The basic knowledge learners would have acquired at level 1 is built on, and learners such as emerging farmers, youth, scholars and amateur gardeners is provided with an understanding of Permaculture principles and the ability to use this knowledge in a Permaculture context is developed.

The unit standard can be used as the foundation for skills development programmes in the field of sustainable agriculture as well as an elective component of other qualifications.

Learners will gain specific knowledge and skills in permaculture principles and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 1: Identify and explain permaculture principles.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Describe and explain the inter-relationship between different site elements and resources in a Permaculture design.
2. Monitor and support the use of biotic and abiotic resources in a Permaculture system.
3. Interpret ecological processes and cycles that can be used in a Permaculture system.
4. Describe and illustrate sustainable living practices that reflect Permaculture ethics.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Explain the inter-relationship between different site components and resources in a Permaculture design.

Range: A Permaculture site design incorporates site resources and components into a holistic system that balances the inputs and outputs so that the total yield is considered rather than the yield of only one form of production. Site components refer to, but are not limited to, the forms of production and elements of a design, such as nurseries, water harvesting, orchards, aquaculture, and so on. The components of a site will differ from one context to another.

Inputs refer to the needs of a component. For example, a nursery requires an adequate supply of water, potting sleeves and shelter. The outputs of a component refer to the products or characteristics of a component. For example, a nursery provides seedlings, water run-off and characteristically it is a relatively warm, humid environment.

Site resources refer to the specific living and non-living, as well as tangible and intangible parts of a landscape that can be used. These include, but are not restricted to, sun, wind, soil, water, human energy, time, climate, animals, information and plants.

Assessment criteria:

- 1.1 Site components are correctly identified and described, and their outputs linked with the needs of at least two other site components in a specific

- context. For example, the outputs of a vegetable garden include vegetable clippings – these could be linked to a worm farm and compost heap.
- 1.2 The needs of specific site components are linked to the outputs of at least two other site components in a specific context. For example, chickens need food and additional protein, and the worm farm and the clippings from vegetable beds could meet these needs.
 - 1.3 The living site resources in a specific context are identified and their characteristics identified.
 - 1.4 The non-living resources in a specific context, and their characteristics, are identified.
2. Define important functions in a Permaculture design and illustrate how these can be met in a number of ways.

Range: Important functions in a Permaculture context refer to the principle purpose of the specific design, and these may vary from one context to another. For example, the functions in a domestic environment could be to provide food for the table as well as a modest income, as well as to provide energy to cook food and heat water, and to provide water to meet the needs of the household and the food/animal production areas. However, the principle purpose of a community food garden could be to generate income, which means that the species selected for cultivation should generate as high an income as possible.

Assessment criteria:

- 2.1 The purpose of the Permaculture design is identified and explained.
 - 2.2 The principle functions of the Permaculture design are identified.
 - 2.3 Two or more ways to support each principle function are identified. For example, the family's water needs could be met by harvesting water into a tank as well as through the municipal supply. Harvesting wood from a woodlot as well as using solar energy could meet the family's energy needs.
3. Monitor and support the use of biotic and abiotic resources in a Permaculture system.

Range: Biotic resources include, but are not restricted to plants, animals, insects, micro-organisms and birds. Abiotic resources include, but are not restricted to, the mineral and water cycles, succession, energy flow, climate, altitude, latitude and wind.

Assessment criteria

- 3.1 Biotic resources are identified and explained.
- 3.2 Abiotic resources are identified and explained.
- 3.3 The role of plants in soil fertility is explained and demonstrated in at least to contexts.
(Range Statement: The application can be demonstrated in any of the following ways, as determined by the context: legumes are interplanted with other crops; a guild is established by selecting the appropriate species; green

- manure is planted between crop plantings; compost is made and applied correctly; the appropriate form of liquid nutrients are prepared and applied.)
- 3.4 The role of animals in soil fertility is explained and demonstrated.
(Range Statement: The application can be demonstrated in any of the following ways, as determined by the context: manure is used in double digging; liquid manure is prepared and applied; manure is used in the making of compost; or, domestic livestock is used in an animal tractor system.)
- 3.5 Wind direction and the areas vulnerable to wind damage are identified.
- 3.6 The geographic placement of a site is explained.
(Range Statement: Geographic placement refers to climate, latitude, altitude, slope, wind and distance from large bodies of water.)
4. Interpret ecological processes and cycles that can be used in a Permaculture system.

Assessment criteria:

- 4.1 The role of micro-organisms in soil health is explained.
- 4.2 At least three species, one of which should be earthworms, are identified in soil and their role in soil health explained.
- 4.3 Organic waste is recycled appropriately for the specific context. This can include a worm farm, compost heap or as food for domestic animals or fowls.
- 4.4 Trees are planted correctly.
- 4.5 Sources of mulch are identified, harvested and applied.
- 4.6 Bare soil is identified and mulched with available and appropriate material.

ACCREDITATION PROCESS

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The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

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specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

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RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 & 2.
2. **Teamwork:** relates to specific outcome 2.
3. **Self-management:** relates to specific outcomes 1 & 2.
4. **Interpreting Information:** relates to specific outcomes 1, 3 & 4.
5. **Communication:** relates to specific outcomes 1, 3 & 4.
6. **Use Science and Technology:** relates to specific outcomes 1 – 4.
7. **The world as a set of related systems:** relates to specific outcomes 1 – 4.
8. **Self-development:** relates to specific outcomes 1 & 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The chemical interactions between the roots of different plants.
2. The role of legumes in the nitrogen cycle.
3. The functions and attributes of the plants that form a guild.
4. The procedure and methods to make and apply liquid nutrients using manure and various plants.
5. The sources, properties and purposes of mulch.
6. The names and purposes of soil nutrients.
7. Organic sources of soil nutrients.
8. The attributes of altitude, latitude and slopes in relation to climate.
9. The properties of wind movements.
10. The influence large bodies of water have on local climate.

SUPPLEMENTARY INFORMATION

Permaculture – A Designer’s Manual, Tagari Publications, and Introduction to Permaculture, Tagari Publications, are used as the foundational texts for Permaculture Design.

NOTES

END

LEVEL 2.6.8**ELECTIVE****TITLE:****EXPLAIN BASIC PIG HUSBANDRY PRACTICES**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

2

CREDIT

:

4

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A person achieving this unit standard will be able to identify abnormalities occurring in the sow, boar and piglets and be able to weigh, record and report data to appropriate supervisors.

Learners will gain specific knowledge and skills in pig husbandry and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 1: Apply standard animal feeding practices

NQF 1: Evaluate basic external anatomy and physiology

NQF 2: Monitor, collect and collate agricultural data

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and describe abnormalities occurring in the sows and boars in a piggery.
 2. Identify and describe abnormalities occurring in piglets in a piggery.
 3. Demonstrate the ability to weigh pigs of all ages, record data and report to appropriate supervisor.
 4. Recognise and apply appropriate boar management practices in the piggery.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and describe abnormalities occurring in the sows and boars in a piggery.

Assessment criteria:

- 1.1 The presence ofagalactia in sows in the farrowing house must be identified and reported.
- 1.2 The presence of anorexia in sows in the farrowing house should be recognised and reported.
- 1.3 The symptoms of mastitis occurring in sows in the farrowing house is recognised and reported.
- 1.4 Other abnormalities in sows and boars in the piggery must be identified and reported.
- 1.5 Symptoms of underfeeding, overfeeding and other nutritional problems must be recognised and reported.

2. Identify and describe abnormalities occurring in piglets in a piggery.

Assessment criteria:

- 2.1 The causes of mortality amongst piglets in the farrowing house must be identified and reported.
 - 2.2 The causes of mortality amongst piglets must be identified and reported the supervisor.
 - 2.3 Causes and signs of cannibalism amongst piglets must be recognised and reported to the supervisor.
 - 2.4 Poor suckling behaviour amongst piglets must be observed and possible causes and solutions must be found.
3. Demonstrate the ability to weigh pigs of all ages, record data and report to appropriate supervisor.

Assessment criteria:

- 3.1 The correct time to weigh the various groups of pigs in a piggery, according to a programme is selected.
 - 3.2 The scale is operated effectively and pigs of all ages are weighed.
 - 3.3 The weighing data is captured on the appropriate data sheets and other observations are recorded during weighing of pigs.
 - 3.4 Weights must be tabulated and findings must be reported to the appropriate supervisor.
4. Recognise and apply appropriate boar management practices in the piggery.

Assessment criteria:

- 4.1 The boar's correct mating age must be selected, the frequency of mating and resting must be determined.
- 4.2 The need to exercise boars on a regular basis is explained and the type of exercise is defined.
- 4.3 Any symptoms of an unhealthy boar must be observed and reported to the supervisor.
- 4.4 Boars must be fed the correct levels of nutrition as determined by the feeding programme.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should

not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-2.
2. **Teamwork:** relates to specific outcomes 1-4.
3. **Self-management:** relates to specific outcomes 1-4.
4. **Interpreting Information:** relates to specific outcomes 1-4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Self-development:** relates to specific outcomes 1-4.
7. **Science and Technology:** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Communication and recording skills to report on observations.

2. Literacy and numeracy skills.
3. The purpose of this training to develop competent people to work in piggeries.
4. Determining abnormalities in sows and boars such as underfeeding, overfeeding, anorexia and other nutritional problems.
5. Recognising mastitis and agalactia in sows.
6. Recognising abnormalities in piglets, such as cannibalism, sucking behaviour and causes of mortality.
7. Weighing procedures and collection of relevant data.
8. Knowledge of the management of the boar such as mating practices, frequency, exercise and symptoms of an unhealthy boar.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.6.9**ELECTIVE**

TITLE: **STORE AND CONTROL AGROCHEMICAL PRODUCTS EFFECTIVELY AND RESPONSIBLY**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 4

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A person achieving this unit standard will be able to receive, store and issue agrochemical products in a safe, secure and responsible manner. Furthermore, the person will be able to deal with emergencies related to the storage of agrochemicals.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. The application of agro-chemicals in primary agriculture is focussed on in this unit standard.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. A culture of maintenance and care for both the environment as well as farming infrastructure and operations will be instilled by this unit standard.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 2: Monitor, collect and collate agricultural data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Receive, store and issue agro-chemicals as advised.
 2. Categorise and segregate agrochemical stock according to a set of requirements.
 3. Implement appropriate safety and security measures.
 4. Keep record of all stock.
 5. Maintain cleanliness and hygiene of the storage facility and containers.
 6. Deal appropriately and effectively with emergencies.
 7. Ensure protective gear is stored in separate facility.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Receive, store and issue agrochemicals as advised.

Range: Storage may include but is not limited to the packing, stacking and locking away of chemicals.

Assessment criteria:

- 1.1 The process of receiving, storing and issuing of chemicals is discussed.
- 1.2 The way chemicals are coded and where and how they should be stored is explained.
- 1.3 The correct moving techniques for chemicals are described.
(Range: Moving includes but is not limited the loading and off-loading of chemicals.)
- 1.4 The record keeping process, which ensures that chemicals do not become redundant, is explained.

- 2 Categorise and segregate agrochemical stock according to a set of requirements.

Range: May include but is not limited to categorising and grouping red band (groups 1a and 1b) products under separate lock and key and segregating herbicides from other agrochemicals.

Assessment criteria:

- 2.1 The different categories of agro-chemicals are discussed.
- 2.2 The meaning of different colour codes is discussed.
- 2.3 The indications by different pictograms on the labels are explained.
- 2.4 The method of, and reason for segregation of different chemicals are explained.
- 2.5 The way different storage areas are marked is discussed.

3 Implement appropriate safety and security measures.

Range: Safety and security measures may include but are not limited to protecting self and co-workers; protecting non-targeted organisms; protecting the environment.

Assessment criteria:

- 3.1 The different protective clothing and equipment used when working with different codes of chemicals is described.
- 3.2 The way different clothing and equipment is used and stored correctly is demonstrated.
- 3.3 The rules (what is allowed and what is not allowed) when working with or applying chemicals is discussed.
- 3.4 Rules which govern the chemical store and who is authorised to use it is explained.

4 Keep record of all stock.

Range: Keeping record includes but is not limited to the manual or computerised filing of what and how much passes in and out of a chemical store.

Assessment criteria:

- 4.1 The definition of record keeping with reference to a chemical store is explained.
- 4.2 The process that is followed is illustrated.
- 4.3 The first in first out principle with reference to expiry date is explained.
- 4.4 The importance of record keeping and updating is explained.

5 Maintain cleanliness and hygiene of the storage facility and containers.

Range: Cleanliness and hygiene include but are not limited to correct way of dealing with empty containers, spills, and after care of equipment and person.

Assessment criteria:

- 5.1 Correct cleaning procedures are described.
- 5.2 The dealing with empty chemical containers and reason is demonstrated and described.
- 5.3 The dealing with clothing after use is described.
- 5.4 The dealing with equipment after use is described.

6 Deal appropriately and effectively with emergencies.

Range: Emergencies include but are not limited to spills, human and animal poisoning and environmental contamination.

Assessment criteria:

- 6.1 The type of emergency facilities that should be present in a chemical store is described.
 - 6.2 The way minor spills are dealt with is described.
 - 6.3 An explanation of what happens in the case of a minor poisoning is given.
 - 6.4 Basic accident procedures are described.
 - 6.5 The record keeping that accompanies an accident or emergency, and reason for it, is described.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** relates to specific outcomes 1 to 6.
2. **Self-management:** relates to specific outcomes 1 to 6.
3. **Interpreting Information:** relates to specific outcomes 1 to 6.
4. **Communication:** 1 to 6 (asking, reporting, and demonstrating).
5. **Science and Technology:** relates to specific outcomes 1 to 6.
6. **Self-development:** relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Interpretation of pictograms, colour coding and symbols.
2. Legal implications of misuse/ abuse i.e. off-label use.
3. Potential hazards associated with agrochemicals.
4. Cleaning and maintenance of equipment and gear.
5. General symptoms of poisoning.
6. Impact of product on the environment, humans and other organisms.
7. Basic storage principles and requirements.
8. Principles and methods of mixing.
9. Empty container and waste disposal.
10. Emergency procedures.
11. Legislation and Codes of Practice.
12. First aid.
13. Hygiene.
14. Contamination.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 2.6.10**ELECTIVE****TITLE: HARVEST NATURAL FLORA**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 2

CREDIT : 4

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A qualified learner assessed as competent against this unit standard will be able to implement sustainable natural flora harvesting practices in an agricultural environment.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF2: Apply sustainable farming practices to conserve the ecological environment.
NQF 2: Recognise and identify the basic functions of the ecological environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate a basic understanding of local habitat ecology and management.
2. Read a map including pinpoint position on the ground and indicate harvest sites on the map.

3. Recognise target and non-target species and minimize the impact on non target species.
 4. Implement appropriate harvesting techniques.
 5. Demonstrate an understanding of the need to record and monitor harvesting practices and associated impacts.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate a basic understanding of local habitat ecology and management principles.

Range: habitat is defined as the local operational range of the harvester. Basic management principles include but are not limited to fire, alien vegetation, etc. for that habitat.

Assessment criteria:

- 1.1 The ability to recognise different habitat adaptations and interactions (biotic and abiotic), e.g. impacts of fire and aliens on plant regeneration and survival is demonstrated.
- 1.2 An understanding of management interventions (e.g. fire management and protection, alien organism control) is demonstrated.

2. Read a map including pinpoint position on the ground and indicate harvest sites on the map.

Range: maps may range from 1:10 000 topographical map to detailed aerial photographs with landscape features.

Assessment criteria:

- 2.1 The ability to read a map and aerial photograph including being able to recognise landscape features is demonstrated.
- 2.2 A field-picking locality on a map is pinpointed.
- 2.3 A map is used to find a picking site on the ground.

3. Recognise target and non-target species and minimize the impact on non-target species.

Range: target and non-target species within the local harvesting range.

Assessment criteria:

- 3.1 A basic understanding of local target and non-target species (e.g. rarity, principles of taxonomy, distinguishing characteristics between target and similar non-target species) is demonstrated.

- 3.2 An understanding of potential impacts (e.g. but not limited to the spread of pathogens, trampling and accidental fire) is demonstrated.
- 3.3 The ability to mitigate potential impacts is demonstrated.

4. Implement appropriate harvesting techniques.

Range: Appropriate tools, local plant guilds and their specific harvesting techniques

Assessment criteria:

- 4.1 A basic understanding of the characteristics of plant guilds and species within guilds is demonstrated.
- 4.2 The ability to implement appropriate harvesting techniques per guild (including but not limited to appropriate tools, cutting techniques and environmental safety) is demonstrated.

5. Demonstrate an understanding of the need to record and monitor harvesting practices and associated impacts.

Range: recording harvested material and recognising and reporting harvesting impacts within harvesters' operational context.

Assessment criteria:

- 5.1 A basic understanding of the need for recording and monitoring is demonstrated.
- 5.2 The ability to record harvested material as well as report impacts associated with harvesting and general environmental condition is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-5.
2. **Self-organisation and management** relates to specific outcomes 1-5.
3. **Information evaluation** relates to specific outcomes 1-5
4. **Communication** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

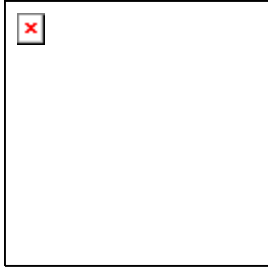
The person is able to demonstrate a basic knowledge of:

1. Communication skills needed to maintain good relations.
2. Basic species identification.
3. Occupational health and safety.
4. Basic fire fighting skills.
5. Basic first aid.
6. Ecologically sustainable methods of harvesting.
7. Purpose and systems of reporting.
8. Basic ecological principles associated with harvesting habitat.
9. Basic management principles associated with harvesting habitat.
10. Basic map reading.

SUPPLEMENTARY INFORMATION

NOTES

END



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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED UNIT STANDARD:
LEVEL 2.6.11

Control problem Animals

SAQA US ID	UNIT STANDARD TITLE		
8347	Control problem Animals		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Nature Conservation	Undefined		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Agriculture and Nature Conservation		Nature Conservation	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
AGR-NAC-0-SGB NATCON	Regular	Level 2	4
REGISTRATION START DATE	REGISTRATION END DATE	REGISTRATION NUMBER	SAQA DECISION NUMBER
2001-10-10	2004-10-10	8347	SAQA 0538/01

PURPOSE OF THE UNIT STANDARD

A qualifying learner assessed as competent against this unit standard will be able to ethically control and process the carcasses of problem animals. This unit standard will also provide the competence necessary for the learner to assist during employer - community interactions with

regard to incidents involving problem animals. Achieving this unit standard will enhance employability of the qualifying learner in both nature conservation and other related jobs.

LEARNING ASSUMED TO BE IN PLACE

Fence maintenance.

First Aid.

Environmental Education Principles.

UNIT STANDARD RANGE

Guides to the scope and complexity of the specific outcomes and essential embedded knowledge are provided in bullet points beneath each. These are prefaced by "for example" since they are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are intended only as a general guide to scope and complexity of what is required.

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Identify any given non-dangerous animal

OUTCOME RANGE

by using knowledge of tracks, behaviour and visual signs be able to identify local problem animals.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

When conducting assessments, assessors must ensure that they are familiar with the full text of the Unit Standards being assessed.

They must ensure that the assessment covers the specific outcomes, critical cross-field outcomes and essential embedded knowledge.

As each situation is different, it will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which practitioners are working. These activities and tools may include self-assessment, peer assessment; formative and summative assessment.

The specific outcomes and essential embedded knowledge must be assessed in relation to each other. If a practitioner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a practitioner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, they should not be assessed as competent.

METHOD OF ASSESSMENT

Assessment should include practical demonstration of competence, either in the workplace or through work-realistic, out-of-classroom simulation.

A range of assessment methods should be used, including:

Direct observation - watch the practitioner carry out the task or produce a desired outcome during the course of his or her normal work under normal workplace conditions

Product sample - examine the outcomes previously produced by the practitioner

Simulation of a specific task - set a specific task for the practitioner to demonstrate in a simulated environment

Questioning (verbal or written) - ask relevant questions linked to the unit standard

Testimony - collect a portfolio of evidence from suitable people (e.g.: reports from a third party)

Integrated assessment

It may be more effective and efficient to assess a number of unit standards together thus reducing the overall number of assessment `events`.

Consider a complete activity in the workplace (the `whole of work` approach) and see which unit standards relate to this activity. Work out how practitioners could collect evidence on a number of unit standards at the same time covering all the critical aspects of the standards Ensure that commonalities that exist between a number of unit standards are captured in a way that makes sense for assessment.

SPECIFIC OUTCOME 2

Assist in control measures that may be necessary involving non-dangerous species

OUTCOME RANGE

be involved in control operations through the knowledge and application of numerous trapping and baiting techniques as well as the maintenance of boundary fences. Dogs along the coast are a problem with regards seals and birds (ground nesting birds)

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

When conducting assessments, assessors must ensure that they are familiar with the full text of the Unit Standards being assessed.

They must ensure that the assessment covers the specific outcomes, critical cross-field outcomes and essential embedded knowledge.

As each situation is different, it will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which practitioners are working. These activities and tools may include self-assessment, peer assessment; formative and summative assessment.

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Assessment should include practical demonstration of competence, either in the workplace or through work-realistic, out-of-classroom simulation.

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Direct observation - watch the practitioner carry out the task or produce a desired outcome during the course of his or her normal work under normal workplace conditions

Product sample - examine the outcomes previously produced by the practitioner

Simulation of a specific task - set a specific task for the practitioner to demonstrate in a simulated environment

Questioning (verbal or written) - ask relevant questions linked to the unit standard

Testimony - collect a portfolio of evidence from suitable people (eg:

reports from a third party)

Integrated assessment

It may be more effective and efficient to assess a number of unit standards together thus reducing the overall number of assessment `events`.

Consider a complete activity in the workplace (the `whole of work` approach) and see which unit standards relate to this activity. Work out how practitioners could collect evidence on a number of unit standards at the same time covering all the critical aspects of the standards Ensure that commonalities that exist between a number of unit standards are captured in a way that makes sense for assessment.

SPECIFIC OUTCOME 3

Carry out skinning procedures, which may be necessary.

OUTCOME NOTES

Carry out skinning procedures which may be necessary as a result of the control of non-dangerous animals as well as assist in the disposal of carcasses.

OUTCOME RANGE

carry out various skinning techniques according to the species and skin use including caping and use for trophies/curio market,

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

When conducting assessments, assessors must ensure that they are familiar with the full text of the Unit Standards being assessed.

They must ensure that the assessment covers the specific outcomes, critical cross-field outcomes and essential embedded knowledge.

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The specific outcomes and essential embedded knowledge must be assessed in relation to each other. If a practitioner is able to explain the

essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a practitioner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, they should not be assessed as competent.

METHOD OF ASSESSMENT

Assessment should include practical demonstration of competence, either in the workplace or through work-realistic, out-of-classroom simulation.

A range of assessment methods should be used, including:

Direct observation - watch the practitioner carry out the task or produce a desired outcome during the course of his or her normal work under normal workplace conditions

Product sample - examine the outcomes previously produced by the practitioner

Simulation of a specific task - set a specific task for the practitioner to demonstrate in a simulated environment

Questioning (verbal or written) - ask relevant questions linked to the unit standard

Testimony - collect a portfolio of evidence from suitable people (e.g.: reports from a third party)

Integrated assessment

It may be more effective and efficient to assess a number of unit standards together thus reducing the overall number of assessment `events`.

Consider a complete activity in the workplace (the `whole of work` approach) and see which unit standards relate to this activity. Work out how practitioners could collect evidence on a number of unit standards at the same time covering all the critical aspects of the standards Ensure that commonalities that exist between a number of unit standards are captured in a way that makes sense for assessment.

SPECIFIC OUTCOME 4

Assist in employer - community interactions in addressing problem animal incidents.

OUTCOME NOTES

Assist in employer - community interactions in addressing problem animal incidents adjacent to protected areas.

OUTCOME RANGE

gather information from local communities relating to problem animals and assist in addressing these problems through the dissemination of information and through the demonstration to address problems in the community caused by problem animals.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

When conducting assessments, assessors must ensure that they are familiar with the full text of the Unit Standards being assessed.

They must ensure that the assessment covers the specific outcomes, critical cross-field outcomes and essential embedded knowledge.

As each situation is different, it will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which practitioners are working. These activities and tools may include self-assessment, peer assessment, formative and summative assessment.

The specific outcomes and essential embedded knowledge must be assessed in relation to each other. If a practitioner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a practitioner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, they should not be assessed as competent.

METHOD OF ASSESSMENT

Assessment should include practical demonstration of competence, either in the workplace or through work-realistic, out-of-classroom simulation.

A range of assessment methods should be used, including:

Direct observation - watch the practitioner carry out the task or produce a desired outcome during the course of his or her normal work under normal workplace conditions

Product sample - examine the outcomes previously produced by the practitioner

Simulation of a specific task - set a specific task for the practitioner to demonstrate in a simulated environment

Questioning (verbal or written) - ask relevant questions linked to the unit

standard

Testimony - collect a portfolio of evidence from suitable people (eg: reports from a third party)

Integrated assessment

It may be more effective and efficient to assess a number of unit standards together thus reducing the overall number of assessment `events`.

Consider a complete activity in the workplace (the `whole of work` approach) and see which unit standards relate to this activity. Work out how practitioners could collect evidence on a number of unit standards at the same time covering all the critical aspects of the standards. Ensure that commonalities that exist between a number of unit standards are captured in a way that makes sense for assessment.

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

Anyone assessing a learner or moderating the assessment of a learner against this unit standard must be registered as an assessor with the relevant ETQA. Any institution offering learning that will enable the achievement of this unit standard must be accredited as a provider with the relevant ETQA. Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQA's policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQA's (including professional bodies); and in terms of the moderation guideline detailed under `Assist in employer - community interactions in addressing problem animal incidents adjacent to protected areas`, immediately below. Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution, which is accredited by the relevant ETQA.

UNIT STANDARD ESSENTIAL EMBEDDED KNOWLEDGE

The qualifying learner is able to demonstrate a basic knowledge and understanding of: Animal identification. Animal Behaviour / physiological stresses. Species-specific relationships (e.g. jackals-pairs-hunt-both and offspring/monkeys-whole troop). Appropriate legislation. Cage trap construction / maintenance / types. Poisons and antidotes. Data

collection techniques.

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Problem solving relates to the following specific outcomes:

Identify any given non-dangerous animal

Assist in control measures that may be necessary involving non-dangerous species

Assist in employer - community interactions in addressing problem animal incidents adjacent to protected areas.

UNIT STANDARD CCFO WORKING

Teamwork relates to the following specific outcomes:

Identify any given non-dangerous animal

Assist in control measures that may be necessary involving non-dangerous species

Carry out skinning procedures which may be necessary as a result of the control of non-dangerous animals as well as assist in the disposal of carcasses.

Assist in employer - community interactions in addressing problem animal incidents adjacent to protected areas.

UNIT STANDARD CCFO ORGANIZING

Self-organisation and management relates to the following specific outcomes:

Identify any given non-dangerous animal

Assist in control measures that may be necessary involving non-dangerous species

Assist in employer - community interactions in addressing problem animal incidents adjacent to protected areas.

UNIT STANDARD CCFO COLLECTING

Information evaluation relates to the following specific outcomes:

Identify any given non-dangerous animal

Assist in control measures that may be necessary involving non-dangerous species

Assist in employer - community interactions in addressing problem

animal incidents adjacent to protected areas.

UNIT STANDARD CCFO COMMUNICATING

Communication relates to the following specific outcomes:

Identify any given non-dangerous animal

Assist in control measures that may be necessary involving non-dangerous species

Carry out skinning procedures which may be necessary as a result of the control of non-dangerous animals as well as assist in the disposal of carcasses

Assist in employer - community interactions in addressing problem animal incidents adjacent to protected areas.

UNIT STANDARD CCFO SCIENCE

Use of science and technology relates to the following specific outcomes:

Assist in control measures that may be necessary involving non-dangerous species

Assist in employer - community interactions in addressing problem animal incidents adjacent to protected areas.

UNIT STANDARD CCFO DEMONSTRATING

Inter-relatedness of systems relates to the following specific outcomes:

Assist in employer - community interactions in addressing problem animal incidents adjacent to protected areas.

UNIT STANDARD NOTES

Values:

Demonstration of the knowledge and skills outlined in this unit standard must be consistent with the principles of:

Maintaining essential ecological processes and life-support systems.

Maintaining genetic, species and ecosystem diversity. Considering ecological and social rights and responsibilities, whilst ensuring sustainable utilisation of species and ecosystems. Thereby yielding the greatest sustainable and equitable benefit to present generations whilst maintaining the potential to meet the needs and aspirations of future generations.

Supplementary information:

Non-dangerous animals - their behaviour and associations are all identified and understood. Extent of damage is assessed and valued. Applicable methods with appropriate problem animals are matched together / selected. All available methods are demonstrated. Carcass / trophy dressed / skinned / treated. Live animals translocated under minimal stress (chemicals). Hygienic food preparation. Potential disease testing / post mortems / sampling. Collect incident / data information. Causes of problem addressed / repaired. Incident data recorded, reported and verified. Weights, nutrition, S+A, scientific data etc. collected and stored.

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LEVEL 3.1.1**FUNDAMENTAL**

TITLE	:	SUPERVISE THE COLLECTION OF AGRICULTURAL DATA
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to supervise the collection and collation of data in a range of contexts in the agricultural sector. In addition the learner will be able to recognise, interpret and report on a range of deviations in data collection processes.

In addition learners will be well positioned to extend their learning and practice into other areas of information management and dissemination in the agricultural sector. Competent learners will understand the purpose behind data collection and contribute to the general standards applied in the sector by contributing to best practices in information gathering.

Learners will understand the importance of the application of business principles in agricultural production, with specific reference to information systems and technology.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-oriented approach to agriculture.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Monitor, Collect and Collate Agricultural Data.

NQF 2: Recognise and identify the basic functions of the ecological environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Ensure that data is collected correctly.
 2. Ensure that the equipment and tools required for data collection are on hand.
 3. Ensure that collated data and reports are submitted as required.
 4. Ensure that the required health and safety regulations are followed.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Ensure that data collected correctly.

Range: The correct data refers to the information that is required by an enterprise and is outlined in a data collection plan. These may include, but are not restricted to: commodities, crops, pests and diseases, agro-chemicals, maintenance, environmental statistics, project-related information, and stock levels.

Assessment criteria:

- 1.1 A range of methods for routine data collection is identified.
- 1.2 The correct use of data collection methods in a specific context is demonstrated.
- 1.3 The collection of data is closely monitored and anomalies are identified.
- 1.4 Collated data is recorded and reported appropriately.
- 1.5 Problems related to accuracy and faulty equipment is recognised, and minor repairs or adjustments are made.

2. Ensure that the equipment and tools required for data collection are on hand.

Range: Tools include peg-boards, pencils and clip-boards, paper, pens, counters, rulers measuring implements such as pH meters, thermometers, thermo-couples, pressure metres, hand-held terminals, computers, scanners, etc.

Assessment criteria:

- 2.1 The equipment and tools required for different data collection processes are identified.
- 2.2 The required tools and equipment are on hand.
- 2.3 Tools and equipment are handed out to task teams.
- 2.4 Tools and equipment are tested on return and, if necessary, minor repairs are described.
- 2.5 Faulty equipment that require specialist repairs are reported and despatched according to policy.

3. Ensure that collated data and reports are submitted as required.

Assessment criteria:

- 3.1 Data is collected and assessed for accuracy.
- 3.2 Collated data is transcribed into the required report format.
- 3.3 Elementary deviations in data are investigated and explained.
- 3.4 Accurate data reports are submitted as required.

4. Ensure that the required health and safety regulations are followed.

Assessment criteria:

- 4.1 Health and safety standards relevant to the method of data collection are identified and explained.
- 4.2 The required protective garments and equipment are on hand and in good working order.
- 4.3 The required protective garments and equipment are used in the field.
- 4.4 The appropriate hygiene and safety measures are applied throughout the process of collection.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 - 4.
2. **Teamwork** relates to specific outcomes 1 - 4.
3. **Self-organisation and management** relates to specific outcomes 1 - 4.
4. **Information evaluation** relates to specific outcomes 1 - 4.
5. **Communication** relates to specific outcomes 1 - 4.
6. **Use science and technology** relates to specific outcomes 1 - 4.
7. **Inter-relatedness of systems** relates to specific outcomes 1 - 4.
8. **Self-development** relates to specific outcomes 1 - 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate an intermediate knowledge of:

1. A range of data collection methods and their application.
2. A range of data collation tools, including basic computer literacy.
3. The National Occupation, Health and Safety Act.
4. The need for collecting agricultural data.
5. The purpose of the data within the enterprise.
6. The purpose of learning about Information technology.

7. Different methods of data collection.
8. Different methods of recording data.
9. Different methods of presenting data.
10. The names and functions of data collection tools and equipment.
11. The descriptions and properties of the source of the data being collected.
12. The description and properties of the data collection equipment.
13. Sensory cues related to the measurement of the data, the data collection equipment and the source of the data.
14. The purpose of the data being collected.
- 15.
16. All relevant rules, laws and regulations related to the source of the data and the data itself.
17. The relationship between the data and information generated by it.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.1.2**FUNDAMENTAL**

TITLE : INCORPORATE BASIC CONCEPTS OF SUSTAINABLE FARMING SYSTEMS INTO PRACTICAL FARM ACTIVITIES

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 3

CREDIT : 7

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to demonstrate an understanding of the importance of sustainability of farming activities. Furthermore, the learner will be able to incorporate this understanding into existing farming activities.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Recognise and identify the basic functions of the ecological environment or equivalent.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify the basic components of sustainable farming systems.
2. Demonstrate an understanding of a system and the nature of a system.
3. Demonstrate an understanding of the balance of sustainability, productivity and conservation of resources.
4. Define and describe a sustainable farming system.

5. Monitor and re-evaluate sustainability of a whole farming system.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify the basic components of sustainable farming systems.

Range: Basic components may be living or non-living, renewable and non-renewable resources. Sustainable farming systems include markets, people, animals, plants, soil micro- flora/ fauna and minerals.

Assessment criteria:

- 1.1 The components of the environment (bio-physical, political, social and economic) are identified and explained.
- 1.2 The concept of sustainability within the agricultural context is explained.
- 1.3 Interactions between the various components of the environment and the agricultural context are defined and explained.
- 1.4 Hard (biophysical) and soft (human) systems and the way they interact are defined and explained.

2. Demonstrate an understanding of a system and the nature of a system.

Range: The nature of a system includes but is not limited to:

- Elements (components).
- Definitions of inter-relationships.
- Dynamics (Overview).
- Hard and soft systems (biophysical & human systems).

Assessment criteria:

- 2.1 The component elements of a system and its inter-relationships is explained.
 - 2.2 Hard and soft systems are identified and the differences between the two types are distinguished.
 - 2.3 The dynamic nature of a system is explained.
3. Demonstrate an understanding of the balance of sustainability, productivity and conservation of resources.

Range: Social sustainability (Participation and ownership).

- Economic sustainability (profit, productivity, marketability).
- Environmental sustainability (biodiversity, conservation, long-term productivity, animal welfare).
- Political sustainability.
- Contexts of legal environment.

Assessment criteria:

- 3.1 Resource limitations in the real world are explained.
- 3.2 The advantages and costs of long-term holistic planning and practice is explained.

- 3.3 The four perspectives in sustainable development (social, economic, political and biophysical) is explained.
- 3.4 An overview of legal implications, of structures and agricultural activities is provided.

4 Define and describe a sustainable farming system.

Range: In plant production, animal production, mixed farming systems, sustainable harvesting of natural resources, game etc.

- Describe a local farming system.
- Identify indicators.
- Measure indicators.
- Awareness of appropriate strategies.

Assessment criteria:

- 4.1 A sustainable farming system is identified and described.
- 4.2 Indicators of sustainable farming systems are identified, explained and measured.
- 4.3 Interactions between system components are explained.
- 4.4 The need for indicators and strategies to ensure sustainable use of natural resources is explained.

5 Monitor and re-evaluate sustainability of a whole farming system.

Range: Link activities, budgets and strategic objectives, through a simple overview of the importance of planning.

Assessment criteria:

- 5.1 Elementary monitoring systems for crop and animal production and natural resources are explained
- 5.2 System is failure is described.
- 5.3 Component/s under stress are described.
- 5.4 Corrective measures are identified and explained.
- 5.5 The progression of seasonal processes and the importance of timely interventions to support productivity are explained.
- 5.6 Basic managerial information are recorded.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-6.
2. **Self-organisation and management** relates to specific outcomes 1-6.
3. **Information evaluation** relates to specific outcomes 1-6.

4. **Communication** relates to specific outcomes 1-6.
5. **Use science and technology** relates to specific outcomes 1-6.
6. **Inter-relatedness of systems** relates to specific outcomes 1-6.
7. **Self-development** relates to specific outcomes 1-6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Communicate with farmers, service providers, researchers, NGO's, clients and market agents.
2. Compile simple reports and write basic business letters.
3. Identify and recognise the ecological, social and economic environment – locally and regionally.
4. Economically the income sources and cost factors should be recognised – local market sources should receive specific attention. The above should be applied to the regional and international environment with specific attention to business and organisations operating and impacting locally.
5. Systems approach to life – definitions of systems like ecosystems, the importance of agriculture as an “open system”, the dynamics of role players within these systems.
6. Understand the concept of sustainability and its applicability to agriculture and conservation.
7. Recognise the importance of the relatedness between social, ecological and economic environment as well as the identification of risk factors at all levels.
8. Knowledge should be demonstrated on the holistic qualification and quantification of the whole farming system. A range of income sources, cost-factors, human influences and actors should be recognised.
9. The legal environment as well as the economic and biological environment should be recognised in order to be aware of present and potential risks.
10. A systems approach should be used to plan and monitor productivity at farm level through the acknowledgement of the interrelatedness of ecosystems and its biological actors with the economic and social environments. This knowledge should be recognised within business plans enabling the learner to understand the rationale of a business plan.
11. An awareness and understanding of how to measure the productivity of farming systems should be demonstrated. This includes the identification of indicators (social, economic, ecological) that should be monitored in order to produce timely managerial information in order to plan better. A simple managerial information system should be available in order to make rational decisions at local level.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.2.1**AGRI-BUSINESS**

TITLE : INTERPRET FACTORS INFLUENCING AGRICULTURAL ENTERPRISES AND PLAN ACCORDINGLY

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 3

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

Qualifying learners are capable of interpreting the factors influencing agricultural enterprises and enterprise selection and production, and of planning accordingly. In addition they will be well positioned to extend their learning and practice into other areas of agriculture, specifically crop production and animal production systems. This training will benefit the profession by equipping learners with adequate skills to have input into the interpretation of factors influencing enterprise selection, and to production planning to improve productivity and performance.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to enterprise planning.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Identify and recognise factors influencing agricultural enterprise selection.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Interpret and categorise natural resources required for the selection of the relevant enterprise.
2. Categorise and maintain infrastructure for the selection of the enterprise.
3. Determine stock required for the relevant enterprise.
4. Define and interpret production procedures within the relevant enterprise.
5. Determine and apply harvest procedures within the relevant enterprise.
6. Compare and interpret post harvest procedures within relevant enterprise.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Interpret and categorise natural resources required for the selection of the relevant enterprise.

Range: Natural resources include but are not limited to soil, water, climate, vegetation, topography and other.

Assessment criteria:

- 1.1 Soil sampling results and recommendations for selection of the enterprise are interpreted and categorised.
 - 1.2 Results and recommendation of water samples are interpreted and applied.
 - 1.3 Climatic weather forecasts required for the selection of the relevant enterprise are interpreted.
 - 1.4 Topography data required for the selection of the relevant enterprise is interpreted and categorised.
 - 1.5 Vegetation types relevant to the selection process are described.
2. Categorise and maintain infrastructural requirements for the selection of the enterprise.

Range: Infrastructural requirements include but are not limited to fencing, housing, water supply, electricity, handling facilities, access and other

Assessment criteria:

- 2.1 The role and function of infrastructure is described.
 - 2.2 Maintenance requirements of the required infrastructure is defined and described.
 - 2.3 Relevant regulations and legislation regarding infrastructure is interpreted and explained.
 - 2.4 Relevant infrastructure required by the relevant enterprise is described.
3. Determine stock required for the relevant enterprise.

Range: All livestock and crops required for the relevant enterprise

Assessment criteria:

- 3.1 Basic production information within the enterprise regarding stock is interpreted.**
- 3.2 Characteristics of specific livestock and crops for the relevant enterprise are described and interpreted.
 - 3.3 The requirements of the livestock and crops for the relevant enterprise are determined and described.
 - 3.4 The suitability of the livestock and crops according to available resources and maintenance required is determined.

4. Define and interpret production procedures within the relevant enterprise.

Range: All livestock and crops required for the relevant enterprise

Assessment criteria:

- 4.1 Production cycle procedures and maintenance thereof are defined and interpreted.
- 4.2 Production cycles according to observation reports are interpreted.
- 4.3 Maintenance of production records are interpreted and explained.
- 4.4 Market information affecting production of the relevant enterprise are interpreted and explained.

5. Determine and apply harvest procedures within relevant enterprises.

Range: All livestock and crops required for the relevant enterprises.

Assessment criteria:

- 5.1 The procedures for successful harvesting are determined and applied.
- 5.2 Harvest practices are recognised and explained.
- 5.3 Good health and hygiene principles are determined and applied.
- 5.4 Relevant regulations and legislation regarding health and hygiene are sourced and applied.

6. Compare and interpret post harvest procedures within relevant enterprises.

Range: All livestock and crops required for the relevant enterprise.

Assessment criteria:

- 6.1 The procedures for successful post harvesting are determined and interpreted.
- 6.2 Post harvest practices are recognised and explained.
- 6.3 Good health and hygiene principles are compared and interpreted.
- 6.4 Relevant regulations and legislation regarding health and hygiene are determined and applied.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 6.
2. **Teamwork:** relates to specific outcomes 1 to 6.
3. **Self-management:** relates to specific outcomes 1 to 6.
4. **Information evaluation:** relates to specific outcomes 1 to 6.
5. **Communication:** relates to specific outcomes 1 to 6.
6. **Science and Technology:** relates to specific outcomes 1 to 6.
7. **Self-development:** relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Role and function of soil and water samples, weather information, vegetation, infrastructure, livestock and crop characteristics, production cycles, records, markets, health and hygiene within production procedures.
2. Description, characteristics and properties of vegetation, infrastructure, weather, production cycles, markets within production procedures.
3. Livestock and crop characteristics.
4. Regulations and legislation related to production procedures.
5. Relationship of outcomes within unit standards in relation to each other and within production procedures.
6. Purpose is to ensure that the learner is able to consider all factors when deciding on what enterprise to establish.
7. Literacy and numeracy skills.
8. Communication and reporting skills.
9. Understand the procedures and principles that are followed to determine the viability of an enterprise.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.2.2**AGRI-BUSINESS**

TITLE	:	EXPLAIN COSTING AND THE VIABILITY OF AN AGRI-BUSINESS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to do a proper costing and understand the viability of an agri-business. In addition the learner will be well positioned to extend their learning and practices into other areas of compiling an integrated budget.

The agri-business owner will benefit from this in the sense that he/she would know at what volume of sales he/she would make a profit.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to finances in an agri-business.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Illustrate and understand the basic layout of financial statements.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Identify and budget for the various sources of income generation available to the agri-business.
 - 2 Identify and budget for the various costs impacting on the agri-business.
 - 3 Demonstrate an understanding of the utilization of break-even budgets to calculate break-even points.
 - 4 Demonstrate the utilisation of whole farm budgets to predict and focus financial outcomes of an agri-business.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Identify the various sources of income generation available to the agri-business.

Range: Income sources refer to both on-farm and off-farm income sources.

Assessment criteria:

- 1.1 The ability to identify the various income generation sources/enterprises available to the agri-business is demonstrated.
- 1.2 The demand/markets for these products/services are demonstrated.
- 1.3 The ability to determine the income for each income source is demonstrated.

- 2 Identify and budget for the various costs impacting on the agri-business.

Range: Fixed, variable cost and contributions.

Assessment criteria:

- 2.1 An ability to identify and understand the various fixed costs impacting on the agri-business is demonstrated.
- 2.2 An ability to identify and understand the various variable costs impacting on the selected agri-enterprises is demonstrated.
- 2.3 The ability to source new prices for the selected cost items (per unit) is demonstrated.

- 3 Demonstrate an understanding of the utilization of break-even budgets to calculate break-even points.

Range: Gross margin budgets, income statements, break-even budgets, and cash-flow budgets

Assessment criteria:

- 3.1 The ability to understand and draft a gross margin budget for each enterprise is demonstrated.
 - 3.2 The ability to draft and understand a budgeted income statement for the whole farm is demonstrated.
 - 3.3 The ability to draft and understand the a cash-flow budget for the whole farm is demonstrated.
 - 3.4 An understanding of the use of break-even analysis as a management tool is demonstrated.
 - 3.5 The ability to determine and apply the break-even point of each commodity as a management tool is demonstrated.
- 4 Demonstrate the utilisation of whole farm budgets to predict and focus financial outcomes of an agri-business.

Range: Budgeted sales refer to the volume of sales at which an acceptable return on investment is achieved.

Assessment criteria:

- 4.1 The business goals with specific reference to profit maximisation in a business is explained.
- 4.2 Return on investment is explained.
- 4.3 The utilization of the cash-flow statement to provide an indication of financial outcomes and input to managerial decisions is demonstrated.
- 4.4 The break-even analysis is utilised.
- 4.5 The gross margin analysis technique is utilised..

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Self-organisation and management** relates to specific outcomes 1-4.
3. **Information evaluation** relates to specific outcomes 1-4.
4. **Use science and technology** relates to specific outcomes 1-4.
5. **Inter-relatedness of systems** relates to specific outcomes 1-4.
6. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Fixed and variable costs.

2. Break-even analysis.
3. Cash-flow budgets.
4. Gross margin analysis.
5. Budgeted sales.
6. Demand driven production.
7. The purpose and importance of:
 - Cash in a business.
 - Profit.
 - Correct amount of income to be a viable business.
 - A basic understanding of capital in agri-business.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.2.3**AGRI-BUSINESS**

TITLE	:	EXPLAIN HUMAN RESOURCE POLICIES AND PROCEDURES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to contribute to the effective functioning of an organisation by understanding Human Resource Principles and Practices applied at the workplace environment. His/her knowledge and understanding should be of such a nature that he/she should be able to provide inputs to these processes if called for.

In addition they will be well positioned to extend their learning and practice into areas of harmonising relations amongst various stakeholders. The profession will benefit from the inputs received from the learner found competent in this unit standard.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to human resources.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Explain the principles of human resources management and practices in agriculture.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of Human Resource rules, policies and procedures.
 2. Demonstrate an understanding of the various stakeholders and their roles within an organisation.
 3. Demonstrate involvement with the preparation and interpretation of contracts and agreements applicable at the work place.
 4. Demonstrate an understanding of employment relations in an organisation.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of Human Resource rules, policies and procedures.

Range: Policies and procedures include but are not limited to disciplinary, grievance, recruitment and selection, harassment, employment equity, etc.

Assessment criteria:

- 1.1 An ability to identify and communicate relevant human resource policies and procedures is demonstrated.
- 1.2 An ability to identify, describe and communicate relevant conditions of employment in an organisation is demonstrated.
- 1.3 The ability to correctly utilise grievance procedures is demonstrated.

2. Demonstrate an understanding of the various stakeholders and their roles within an organisation.

Range: Stakeholders include but are not limited to management and organised labour on-farm

Assessment criteria:

- 2.1 The ability to correctly identify different stakeholders within the agri-business is demonstrated.
- 2.2 The ability to correctly identify different external stakeholders is demonstrated.
- 2.3 The roles of identified stakeholders are explained.

3. Demonstrate involvement with the preparation and interpretation of contracts and agreements applicable at the work place.

Range: Skills development levy, BCEA, Training Agreement, Recognition Agreement, etc.

Assessment criteria:

- 3.1 The ability to provide inputs in the preparation of employment contracts is demonstrated.
- 3.2 Non-compliance in terms of agreements such as the BCEA agreement reached with stakeholders is explained.
- 3.3 The ability to identify and communicate relevant agreements both verbally and in writing is demonstrated.

4. Demonstrate an understanding of employment relations in an organisation.

Range: Race, ethnic groups, language and cultural differences, employment equity policy

Assessment criteria:

- 4.1 Differences in culture and language are explained.
- 4.2 An understanding of the organisational policies and procedures related to employment is explained.
- 4.3 Health and Safety rules and practices is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should

not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-4.
2. **Teamwork:** relates to specific outcomes 1 and 3.
3. **Self-management:** relates to specific outcome 4.
4. **Interpreting Information:** relates to specific outcome 4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Use Science and Technology:** relates to specific outcomes 1 and 4.
7. **The world as a set of related systems:** relates to specific outcome 4.
8. **Self-development:** relates to specific outcome 3.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Employment related procedures.

2. Centralised and decentralised agreements.
3. Basic principles of organised labour.
4. Implication of not following labour legislations and agreed procedures.
5. Plans e.g. Employment equity plan, work skill plans, training plan.
6. Labour legislations e.g. BCEA, LRA, EEA, SDA, OHSACT.
7. Policies e.g. Employment equity, grievance and disciplinary, harassment, HIV/Aids.
8. Relationship with relevant stakeholders, internally and externally e.g. trade unions.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.2.4**AGRI-BUSINESS**

TITLE	:	EXPLAIN STORE INPUTS CATEGORIES, LABELING AND STORAGE METHODS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to receive, store and assist to issue agro-inputs appropriately. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and storage and stock control.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to inputs, sourcing and resources.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Control inputs and stock in agribusiness.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Receive orders of agro-inputs appropriately.
 2. Update records correctly.
 3. Maintain levels of agro-inputs within acceptable limits and complete requisition forms correctly.
 4. Explain the issuing of stock (agro-inputs) correctly.
 5. Observe legislation regarding handling and storage of agro-inputs to avoid penalties.
 6. Schedule the flow of agro-inputs to avoid deterioration and wastage.
 7. Evaluate alternative suppliers for efficiency, product quality and price.
 8. Inspect, issue and check returned equipment.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Receive orders of agro-inputs appropriately.

Range: This may include but is not limited to counting and differentiating between different agro-inputs

Assessment criteria:

- 1.1 Agro-inputs in an order are identified.
- 1.2 The attributes of agro-inputs are quantified and describe.
- 1.3 Ordering documentation related to agro-inputs are controlled and managed.
- 1.4 The relevant quality and other attributes of the agro-inputs are explained.

2. Update records correctly.

Range: Records include but are not limited to documents and computer records.

Assessment criteria:

- 2.1 Received stock on stock sheets (electronic or documented) is recorded.
- 2.2 The current balances of all stock are continually monitored and calculated.
- 2.3 Stock levels are reported.

3. Maintain levels of agro-inputs within acceptable limits and complete requisition forms correctly.

Assessment criteria:

- 3.1 Levels of various agro-inputs are identified.
(Range: levels of stock include but are not limited to upper levels, lower levels, danger levels, replenishment levels and re-order levels).
 - 3.2 Stock levels are monitored and adapted.
 - 3.3 Appropriate documentation or electronic media for re-ordering agro-inputs are completed and issued correctly and timeously.
4. Explain the issuing of stock (agro-inputs) correctly.

Assessment criteria:

- 4.1 Documentation (electronic or paper) used to request agro-inputs is identified.
- 4.2 The stock issuing documentation is correctly completed and issued.
- 4.3 The steps that are taken to ensure correct supplies in terms of quality, quantity and specification are explained.
5. Observe legislation regarding handling and storage of agro-inputs to avoid penalties.

Range: Includes but is not limited to interpretation of rules and regulations regarding handling and storage of inputs. Explanation of contracts, penalties and obligations regarding input supply.

Assessment criteria:

- 5.1 Legislation regarding storage of various agro-inputs is explained.
- 5.2 Legislation regarding storage, purchase and supply contracts is explained.
- 5.3 Means of ensuring observance of legislation is described.
- 5.4 The impact of penalties and profiling of an agro enterprise is discussed.

6. Schedule the flow of agro-inputs to avoid deterioration and wastage.

Assessment criteria:

- 6.1 Causes of deterioration and wastage in agro-products is identified and discussed.
- 6.2 Sources of wastage of agro products (including pests, shrinkage, spillage, etc.) is identified and discussed.
- 6.3 Means of preventing deterioration and wastage of agro inputs is described.
- 6.4 A flow arrangement of agro-inputs to ensure FIFO or similar appropriate system is prepared.

7. Evaluate alternative suppliers for efficiency, product quality and price.

Assessment criteria:

- 7.1 Different suppliers of agro-inputs and their products and equipment are sourced.
- 7.2 Different products and suppliers in terms of cost/benefits are compared.
- 7.3 Suitable suppliers, products and equipment for purchase are recommended.

8. Inspect, issue and check returned equipment.

Assessment criteria:

- 8.1 Inspection of equipment and facilities for damage are demonstrated.
- 8.2 The issuing out only wholesome, quality requisites and equipment or facilities for use are explained.
- 8.3 Returned facilities or equipment for wear and tear or abuse are inspected.
- 8.4 The repair or maintenance of facilities and equipment is recommended.
- 8.5 Documentation related to returns is completed.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 8.
2. **Teamwork:** relates to specific outcomes 1 to 8.
3. **Self-management:** relates to specific outcomes 1 to 8.
4. **Communication:** relates to specific outcomes 1 to 8.
5. **The world as a set of related systems:** relates to specific outcomes 1 to 8.
6. **Self-development:** relates to specific outcomes 1 to 8.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of all the components of a stock control system are identified.
2. Sensory cues and documented cues related to various stock levels are understood.
3. The purpose of the various attributes of a stock control system is understood.
4. Events and their implications regarding the keeping of agricultural stocks are understood.
5. Procedures involved in the keeping of stock are understood.
6. Relevant legislation, rules and regulations are understood.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.2.5**AGRI-BUSINESS**

TITLE	:	EXPLAIN APPLICATION OF MARKETING PRINCIPLES WITHIN AN ALTERNATIVE AND DYNAMIC AGRICULTURAL MARKETING ENVIRONMENT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to apply the components of the marketing cycle in alternative agricultural marketing environments.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to agricultural marketing.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

In addition he/she will be exposed to the dynamic and demanding nature of bigger markets, thereby extend the learning process to dynamic economic environments. The profession will benefit from this in that more practical inputs into managerial decision-making will be made.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Apply marketing principles in agriculture.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an awareness of the managerial vision of the agribusiness with specific relation to the dynamic environment in which it operates.
 2. Monitor the alternative marketing environment and determine variables in marketing cycle for a specific agricultural commodity.
 3. Distinguish the characteristics and critical success factors of alternative markets for a specific agricultural commodity.
 4. Modify the marketing supply chain cycle for alternative markets of a specific agricultural commodity.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an awareness of the managerial vision of the agribusiness with specific relation to the dynamic environment in which it operates.

Range: Managerial decision-making, marketing goals, budget-allocation, sourcing of expertise and information.

Assessment criteria:

- 1.1 Future plans of the agribusiness are explained.
- 1.2 The budget allocation for market research and development is explained.
- 1.3 Knowledge on information sources available to assist in marketing research and development is identified.

2. Monitor the alternative marketing environment and determine variables in marketing cycle for a specific agricultural commodity.

Range: Internal marketing value chain components includes but is not limited to external, political, economic, social, technology, e.g. packaging, pricing, etc.

Assessment criteria:

- 2.1 The external environment with specific reference to marketing influences, risks and uncertainties is explained.

- 2.2 Internal marketing influences, risks and uncertainties for a specific agricultural commodity are explained.
- 2.3 A basic analysis of the external and internal environment regarding political, economical, social, technological, and environmental factors impacting at present and in future on the agribusiness is demonstrated.
3. Distinguish the characteristics and critical success factors of alternative markets for a specific agricultural commodity.
Range: Local, export and formal and informal markets, human behavioural characteristics and needs

Assessment criteria:

- 3.1 The characteristics and critical success factors of alternative markets for at least a single specific agricultural commodity is compared.
- 3.2 The ability to identify influences on consumer behaviour of alternative markets for at least a single specific agricultural commodity is demonstrated.
- 3.3 Demonstrate the ability to appraise the interplay of factual and behavioural aspects of alternative markets of a specific agricultural commodity.
4. Modify the marketing supply chain cycle for alternative markets of a specific agricultural commodity.

Range: Procurement, production, shipment and delivery.

Assessment criteria:

- 4.1 The ability to identify and acknowledge the critical success factors of the marketing supply chain applicable to alternative markets for a specific agricultural commodity is demonstrated.
- 4.2 The ability to perform a basic appraisal of the marketing supply chain and distribution channels to suit alternative markets for a specific agricultural commodity is demonstrated.
- 4.3 An awareness of the need to integrate the supply and demand chains of a single agricultural commodity in order to achieve productivity and raise present and future/potential profits is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-4.
2. **Teamwork:** relates to specific outcomes 1-4.
3. **Self-management:** relates to specific outcomes 1-4.
4. **Interpreting Information:** relates to specific outcomes 3 and 4.
5. **Communication:** relates to specific outcomes 1-4.

6. **Use Science and Technology:** relates to specific outcomes 3 and 4.
7. **The world as a set of related systems:** relates to specific outcomes 2-4.
8. **Self-development:** relates to specific outcome 3.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Managerial vision.
2. Dynamic nature of agricultural environment regarding political, environmental, social, economic and cultural environments.
3. Marketing cycle of a product.
4. Critical success factors.
5. Alternative and new markets.
6. Market penetration for various markets.
7. Demand chain for a single commodity.
8. Supply chain for a single commodity.
9. Integration of marketing chains.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.2.6**AGRI-BUSINESS**

TITLE : **EXPLAIN THE PLANNING AND SCHEDULING OF TASKS IN A PRODUCTION ENVIRONMENT**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 3

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to understand the use of day to day planning and scheduling for optimal production in the agricultural processing environment. The learner will also be able to make useful inputs in the planning and scheduling process. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and management, creating a valuable human resource within the agricultural sector.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to production/conversion.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Define and understand production systems and production management.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Explain production planning and the different levels of planning that can be used in production planning activities.
 - 2 Demonstrate an understanding of scheduling.
 - 3 Demonstrate production optimisation techniques.
 - 4 Demonstrate the ability to make meaningful comments on the planning and scheduling process.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Explain production planning and the different levels of planning that can be used in production planning activities.

Range: Production planning refers to but is not limited to the choices between enterprises and processes, inputs, processing processes, markets and standards, etc. to which the final product should comply.

Assessment criteria:

- 1.1 The different levels of planning encountered in the agricultural production process is described.
(Range: Types of planning referred to include but are not limited to short- (operational), medium- (tactical), and long-term (strategic) production planning).
 - 1.2 Enterprise and product options are described.
(Range: Enterprise refer to but is not limited to the different products that can be produced).
(Range: Products refer to but is not limited to the end results after the conversion process).
 - 1.3 Factors influencing the planning process are explained.
 - 1.4 The relationship between income and expenditures, costing, budgeting are explained.
(Range: Only the basic definitions and relations need to be address).
2. Demonstrate an understanding of scheduling.

Range: Scheduling refers to but is not limited to the day-to-day activity planning of the various production processes. Activities refer to but are not limited to the timely usage of the specific inputs, processes and outputs

scheduled such as planting dates, fertilising, pruning, harvesting, feeding, mating periods, vaccinations, selling, etc.

Assessment criteria:

- 2.1 Scheduling is explained.
 - 2.2 The different scheduling techniques are described.
 - 2.3 Forward and backward scheduling is described.
 - 2.4 The importance of control over schedules is explained.
3. Demonstrate production optimisation techniques.

Range: Optimising techniques include but are not limited to the recording of parameters related to inputs, processes and output, basic analysis and adaptation thereof.

Assessment criteria:

- 3.1 An understanding of the recording of agricultural inputs and the measurement against parameters and goals are demonstrated.
 - 3.2 An understanding of the recording of agricultural production and process data and the measurement against goals is demonstrated.
(Range: Data include but are not limited to process and production environmental data such as temperature, growth ratios, feed and fertiliser conversion schedules, etc.).
 - 3.3 The ability to record agricultural production output data and measure it against parameters and goals is demonstrated.
 - 3.4 The basic ability to statistically analyse recorded data and to analyse productivity of agricultural processes based on the analysis is demonstrated.
 - 3.5 The ability to adapt agricultural inputs and processes to achieve required output is demonstrated.
4. Demonstrate the ability to make meaningful comments on the planning and scheduling process.

Range: Comment may be made but is not limited to the timely usage of the specific inputs, processes and outputs scheduled such as planting dates, fertilising, pruning, harvesting, feeding, mating periods, vaccinations, selling, etc.

- 4.1 An understanding of production planning is demonstrated.
- 4.2 An understanding of scheduling by making useful inputs with regard to the activities and timeframes, in the planned schedule is demonstrated.
- 4.3 The implementation of various management decisions regarding planning, implementing and optimisation agricultural production processes is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Teamwork** relates to specific outcomes 1-4.
3. **Self-organisation and management** relates to specific outcomes 1-4.
4. **Information evaluation** relates to specific outcomes 1-4.
5. **Communication** relates to specific outcomes 1-4.
6. **Use science and technology** relates to specific outcomes 1-4.
7. **Inter-relatedness of systems** relates to specific outcomes 1-4.
8. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The procedures to follow with production planning and scheduling.
2. The purpose of production planning and scheduling.
3. The various production methods encountered in agricultural processing.
4. Basic statistics.
5. Basic presentation skills.
6. Basic meeting procedure.
7. Scheduling techniques.
8. Planning methodologies.
9. Interpersonal relations.
10. The purpose of learning about production / conversion planning.
11. Data recording and analysis techniques.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 3.3.1**AGRICULTURAL PRACTICES**

TITLE	:	APPLY ROUTINE MAINTENANCE AND SERVICING PLANS AND PROCEDURES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to apply a routine maintenance and routine servicing plan procedures to ensure the ongoing efficient working order of equipment, technology, infrastructure and implements. S/he will also be able to operate in a safe and responsible manner.

In addition, learners will be well positioned to extend their learning and practice into other areas of agriculture and to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural regulations and aspects of safety as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal, plant and mixed farming sub fields. This unit standard focuses on the application of equipment, technology, implements and infrastructure in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Utilise and perform minor repair and maintenance tasks on implements; equipment and infrastructure.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Understand and schedule a routine maintenance plan.
- 2 Implement a service maintenance plan.
- 3 Apply maintenance service procedures according to specified policies.
- 4 Adjust and maintain the good working order of tools, equipment and machinery.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Understand and schedule the implementation of a routine maintenance plan.

Range: A routine maintenance schedule refers to a list of tasks that are performed on a regular, specified and on-going basis in order to ensure that tools, equipment, machinery and implements are kept in good working order. These tasks may include the servicing of vehicles, implements and machinery as well as the examination of tools and implements for quality checks.

Assessment criteria:

- 1.1 A routine maintenance schedule is interpreted and plotted against a calendar to set tasks on specific days.
- 1.2 The scheduling of tasks to prevent disruption of work is demonstrated.
- 1.3 Adequate and appropriate materials and tools are on hand.

- 2 Implement a service maintenance plan

Assessment criteria:

- 2.1 The tasks listed on the service maintenance plan are executed according to the scheduled dates.
- 2.2 Tasks that are not performed due to unforeseen reasons are rescheduled appropriately.
- 2.3 Support and guidance are provided to other workers engaged in the maintenance tasks.

3 Apply maintenance and service procedures according to specified policies.

Range: Equipment refers to any of those that are used in the agricultural sector to perform functions that include, but are not limited to, fertiliser distribution, shearing, water distribution, sprayers, vehicles, and tractors.

Assessment criteria:

- 3.1 Plans and procedures for cleaning and storage of equipment and implements are prepared.
- 3.2 The reasons for proper maintenance and storage of agricultural equipment are explained.
- 3.3 Equipment not functioning efficiently is repaired.
- 4. Ensure the application of appropriate safety measures in the use of agricultural equipment and implements.

Range: Equipment may include, but are not limited to, hand tools, power tools, fuel pumps, etc. to hand operated machinery, tractors, and graders.

Assessment criteria:

- 4.1 The work safety policy of the workplace is explained.
- 4.2 Safety regulations applicable to the use and handling of fuel, equipment and agro-chemicals are explained.
- 4.3 The safe operation of equipment and implements is explained.
- 4.4 Appropriate protective clothing required for the safe use of equipment is used.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the

specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1, 2, 4, 5 and 6.
2. **Teamwork** relates to specific outcomes 2, 3, 5 and 6.
3. **Self-organisation and management** relates to specific outcomes 1, 4 and 6.
4. **Information evaluation** relates to specific outcomes 1, 2, 4, 5 and 6.
5. **Communication** relates to specific outcomes 2, 3, 4, 5 and 6.
6. **Use science and technology** relates to specific outcomes 1, 2, 3, 4, 5 and 6.
7. **Inter-relatedness of systems** relates to specific outcomes 3, 4, 5 and 6.
8. **Self-development** relates to specific outcomes 5 and 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The purpose of planning and scheduling maintenance tasks.
2. How the relevant equipment, tools, implements and machines work.

3. The contents of the National Occupation and Safety Act.
4. The safe handling of tools and equipment.
5. The principles of safety precautions.
6. Teamwork and communication.
7. Work program development.
8. Identification and resolving problems related to a work program.
9. The benefits of a well-prepared work plan.
10. Elementary leadership and supervisory techniques.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.3.2**AGRICULTURAL PRACTICES**

TITLE	:	MONITOR AND SUPERVISE A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to monitor and supervise the implementation of food safety and quality, production, environmental and social practices, and awareness within the agricultural supply chain.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal, plant and mixed farming sub fields. This unit standard focuses on the application of food safety practices in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Apply crop protection and animal health products effectively and responsibly
NQF 2 Operate and support a food safety and quality management system in the agricultural supply chain.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Demonstrate an understanding of the concept of traceability in the agricultural supply chain.
 2. Perform basic record keeping activities on the farm.
 3. Report non-conformances with respect to food safety, production, environmental, and social practices in the agricultural environment.
 4. Understanding basic health, social and environmental issues which relate to the agricultural environment.
 5. Demonstrate a basic understanding of internal audits in the agricultural environment.
 6. Operate food safety and quality principles as related to the agricultural supply chain.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Demonstrate an understanding of the concept of traceability in the agricultural supply chain.

Range: Traceability includes but is not limited to being able to trace a pre-harvest problem back to the source or a post-harvest problem back to the farm.

Assessment criteria:

- 1.1 Traceability within the area of responsibility is explained.
- 1.2 The purpose of traceability is explained.
- 1.3 The effect of non-compliance is described.

- 2 Perform basic record keeping activities on the farm.

Range: Record keeping includes but is not limited to document filing or retrieval manually or electronically of activities such as, pest management, fertiliser management, irrigation scheduling, training etc., which has an impact on the farming activities.

Assessment criteria:

- 2.1 The filing of documents according to discipline or farming activity in accordance with GAP is described.
- 2.2 A quality management system is explained.
- 2.3 The need for such a system within the agricultural enterprise is explained.
- 2.4 The retrieval of records with respect to human resource issues, management, environment or agricultural operations are demonstrated.

3. Report non-conformances with respect to food safety, production, environmental, and social practices in the agricultural environment.

Range: Reporting of non-conformances according to certain aspects includes but is not limited to verbally or in writing instructing about aspects, which do not fit within the confines of necessary regulation.

Assessment criteria:

- 3.1 Understand by a “safe product” is explained.
- 3.2 Non-conformance with respect to food safety, production, environmental, and social practices in terms of management systems is explained.
- 3.3 Reporting to management is described..

4. Understanding basic health, social and environmental issues which relate to the agricultural environment.

Range: Health, social and environmental issues include but are not limited to laws, rules and regulations that govern these aspects within the agricultural enterprise.

Assessment criteria:

- 4.1 Legal and regulatory issues governing health, social and environmental issues within agricultural enterprises are described.
- 4.2 Dissemination of information to workers is explained.
- 4.3 An understanding of how certain health issues (communicable diseases) are dealt with is demonstrated.
- 4.4 An understanding of how the environment is dealt with in terms of the agricultural enterprise is demonstrated.
- 4.5 The different records, which are needed to comply with the regulatory policies are described.

5. Demonstrate a basic understanding of internal audits in the agricultural environment.

Range: Internal audits include but are not limited to implementing checks and balances that assist the GMP to ensure good agricultural practices in keeping with the workers and the environment.

Assessment criteria:

- 5.1 Internal audits are explained.
- 5.2 The execution of internal audits is described.
- 5.3 The process of auditing to ensure that the proper use of agrochemicals, according to IPM principles, is implemented is explained.
- 5.4 Record keeping that assists with the auditing process is explained.

6. Operate food safety and quality principles as related to the agricultural supply chain.

Range: Food safety and quality includes but is not limited to good agricultural practices (GAP), good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP), whichever is applicable in the work environment.

Assessment criteria:

- 6.1 The different food safety principles with reference to pre-harvest activities are described.
- 6.2 An understanding of how food quality is managed in the pre-harvest phase to ensure a product produced according to GAP is demonstrated.
- 6.3 Record keeping associated with both aspects of the agrochemical operation is explained.
- 6.4 The importance of the record keeping is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 2-6.
2. **Team work** relates to specific outcomes 1-6.
3. **Self-organisation and management** relates to specific outcomes 1-6.
4. **Information evaluation** relates to specific outcomes 1-6.
5. **Communication** relates to specific outcomes 1-6.
6. **Use science and technology** relates to specific outcomes 1-6.
7. **Inter-relatedness of systems** relates to specific outcomes 1-6.
8. **Self development** relates to specific outcomes 1-6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Principles of regulatory and legal aspects with reference to the specific agricultural enterprise.
2. A basic understanding of food-borne illnesses.
3. A basic knowledge of the impact of food safety and quality in trade.
4. A thorough understanding of contamination risks and preventative measures.
5. A basic understanding of risk factors related to food safety.
6. Be familiar with the principles of food safety and quality.
7. Basic principles of environmental and conservation management.

8. Basic principles of waste and pollution management.
9. Basic principles of natural resource management.
10. Relevant legislation such as the Occupational Health and Safety Act.
11. A basic understanding of procedures of internal audits.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.3.3

AGRICULTURAL PRACTICES

TITLE	:	MAINTAIN WATER QUALITY PARAMETERS
SAQA LOGO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to maintain water quality and adjust systems to ensure appropriate water quality. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and water management.

Learners will gain specific knowledge and skills in maintenance of water quality and will be able to operate in an animal and plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal and plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Monitor Water Quality.

NQF 2: Operate and support a food safety and quality management system in the .
agricultural supply chain.

NQF 2: Apply sustainable farming practices to conserve the ecological environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Read, record and interpret certain parameters and abnormalities in water quality.
2. Demonstrate an understanding of critical control points in water quality management.
3. Enable corrective action to occur on certain operational technical that control specific physical and chemical factors in water and relate it to a specific organism's water quality requirement.
4. Ensure that quality assurance systems related to water quality are in place and maintained.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Read, record and interpret certain parameters and abnormalities in water quality.

Range: This will include but is not limited to physical factors, temperature, chemical factors (dissolved gasses), pH, biological processes (photosynthesis, nitrogen cycle, decomposition), organic load, etc.

Assessment criteria:

- 1.1 An understanding of the effects of certain physical factors of water and relate and apply them to a relevant specie of animal or plant requiring water are demonstrated.
 - 1.2 The ability to sample, read and record factors accurately is demonstrated.
 - 1.3 An understanding of the effects of certain chemical factors is demonstrated.
 - 1.4 General knowledge of biological processes of animals and plants, which relate to specific physical and chemical quality factors in water are demonstrated.
2. Demonstrate an understanding of critical control points in water quality management.

Assessment criteria:

- 2.1 An understanding of the water quality requirements and acceptable ranges of a relevant animal or plant species is demonstrated.
- 2.2 The ability to make comparisons and to explain and interpret recorded readings of water quality measurements is demonstrated.
- 2.3 An ability to explain the physical, chemical and biological requirements and recall acceptable physical and chemical ranges of a relevant animal or plant species are demonstrated.

3. Enable corrective action to occur on certain operational systems that control specific physical and chemical factors in water and relate it to a specific organism's water quality requirement.

Assessment criteria:

- 3.1 An understanding of the working of water quality management systems is demonstrated.
- 3.2 The ability to adjust and maintain water quality management systems and equipment is demonstrated.
- 3.2 The ability to record and communicating findings on the maintenance of water quality and water quality management systems is demonstrated.
4. Ensure that quality assurance systems related to water quality are in place and maintained

Assessment criteria:

- 4.1 The concept of quality management systems is explained.
(*Range:* quality management systems include but are not limited to systems such as GAP, TQM, and QES)
- 4.2 Quality management systems with regarding to the supply of water to living plant and animal organisms is explained
- 4.3 Improvements regarding water supply and quality systems is recommended.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed

as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** Relates to all specific outcomes.
2. **Team Work:** Relates to all specific outcomes.
3. **Self Management:** Relates to all specific outcomes.
4. **Communication:** Relates to all specific outcomes.
5. **Interpreting information:** Relates to all specific outcomes.
6. **Science and Technology:** Relates to all specific outcomes.
7. **The world as a set:** Relates to all specific outcomes.
8. **Self development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of all the various components of water supply and quality systems.
2. Attributes of water related to water quality.
3. The requirements of organisms related to their water need.
4. The purposes of maintaining relevant water quality for living organisms.
5. Measurement and recording technique.
6. Water purification techniques and systems.
7. Relevant legislation related to the feeding and care of living organisms.
8. Relevant legislation related to water use and environmental issues.
9. Interpersonal skills related to communication.
10. Sensory and documented cues related to water quality.
11. Sensory cues related to the water requirements and use of water by living organisms.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.3.4

AGRICULTURAL PRACTICES

TITLE	:	MONITOR NATURAL RESOURCE MANAGEMENT PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to explain the importance of maintaining and increasing of natural resources. Furthermore, the learner will be able to incorporate this understanding into existing farming activities by monitoring practices to conserve the environment, including natural resources, thereby ensuring optimal use of natural resources on the farm.

Competent learners will be conversant with agricultural regulations and aspects of conservation so that environmentally sound agricultural practices will be applied.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of natural resource management in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Apply sustainable farming practices to conserve the ecological environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Know and monitor the occurrence of key types of fauna and flora and their environmental requirements.
 2. Demonstrate an understanding of the elements of an ecosystem and a food chain.
 3. Identify the key fauna and flora types and their sustainable management.
 4. Identify the different soil categories, the utilisation and maintenance thereof.
 5. Monitor and implement principles of water management.
 6. Demonstrate a basic understanding of the energy cycle.
 7. Read a two dimensional map of the direct vicinity.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Know and monitor the occurrence of key types of fauna and flora and their environmental requirements.

Range: Fauna and flora include all harmful and useful fauna and flora on the farm and direct vicinity.

Assessment criteria:

- 1.1. The uses and impacts of animals in different vegetation types are described.
- 1.2. The utilisation patterns of different animals are described.
- 1.3. The effects of farming activities on the habitat of fauna and flora are described.
- 1.4. Decreases and increases of the fauna and flora are recorded.
- 1.5. Suitable solutions to counteract the decreases and increases from a limited range of options are selected.

2. Demonstrate an understanding of the elements of an ecosystem and a food chain.

Range: "Ecosystem" includes but is not limited to energy flows, water cycle, climate, soil, fauna, flora and air. "Food chain" is limited to food chain components.

Assessment criteria:

- 2.1. Correct and appropriate methods to maintain and balance the ecosystem are selected and applied.
- 2.2. Identified problem areas are communicated to the supervisor.
- 2.3. Preventative measures to avoid degradation of soil and deterioration of vegetation are selected and applied.
- 2.4. The roles of the ecosystem and of food chains are explained.

3. Identify the key fauna and flora types and their sustainable management.

Range: All pastures on a farm.

Assessment criteria:

- 3.1. An understanding of the wise utilisation of different fauna and flora to the benefit of the farming activities and the environment are demonstrated.
 - 3.2. Management techniques are understood and applied.
 - 3.3. Rehabilitation methods are described.
 - 3.4. The status of the fauna and flora on the farm is monitored, recorded and reported.
4. Identify the different soil categories, the utilisation and maintenance thereof.

Range: Soil types are limited to three types occurring on the farm or direct environment.

Assessment criteria:

- 4.1 Deterioration in vegetation in relation to the soil condition / degradation is observed and explained.
 - 4.2 Signs of soil erosion is observed and reported.
 - 4.3 Soil erosion preventative measures are monitored and progress or the lack thereof is reported.
 - 4.4 Vegetation species suitable to the soil type that can be used for degraded soil are identified and planted.
 - 4.5 Appropriate application of soil conservation structures and methods are monitored.
 - 4.6 Rotational farming practices are applied.
5. Monitor and implement principles of water management.

Range: Water management includes but is not limited to rainwater harvesting, catchment methods, protection of wells and fountains, protecting and controlling riverbanks, etc.

Assessment criteria:

- 5.1 Maintenance needs of water sources are identified and acted upon.
 - 5.2 Cultivars promoting the optimal use of water are identified.
 - 5.3 Causes of water pollution are described and methods of water pollution are applied.
 - 5.4 Basic methods of water harvesting are described and appropriately applied.
 - 5.5 An understanding of the water run-off plan is demonstrated.
6. Demonstrate a basic understanding of the energy cycle.

Range: Limited to the components of the energy cycle.

Assessment criteria:

- 6.1 Importance of attitude (position relative to the sun) of plants and animals, and sun interactive cycles are explained.
- 6.2 The conversion of sun energy into food is explained.
- 6.3 The energy cycle is explained.

- 7. Read a two dimensional map of the direct vicinity.

Range: Limited to basic topography.

Assessment criteria:

- 7.1 The significance of contours, slopes, valleys and scale are explained.
- 7.2 Rivers, streams, wetlands, cultivated areas and differing land uses are recognised.
- 7.3 The ability to orientate the map correctly according to the magnetic North Pole is demonstrated.
- 7.4 The boundaries of the local farm unit on the map, and main characteristics are identified.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not, unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-7.
2. **Self-organisation and management** relates to specific outcomes 1-7.
3. **Information evaluation** relates to specific outcomes 1-7.
4. **Communication** relates to specific outcomes 1-7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic fire fighting rules.
2. Basic principles of natural resources management.
3. Acts and legislation on “conservation of Agricultural Resources”.
4. OHS Act.
5. Natural Resource Conservation Act.
6. Components of the water cycle.
7. Components of ecosystems.
8. Components of an energy cycle.
9. Principles of sustainability.
10. Classification of fauna and flora relevant to the direct environment.
11. Alien species relevant to the direct environment.
12. Three main soil types and characteristics.

13. Definitions and terminology.
14. Prevailing climatic conditions of the area.
15. Sources of water.
16. Sources of energy (renewable and non renewable).
17. Basic topography and map reading.
18. Types of pollution.
19. Importance of natural resources management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.3.5**AGRICULTURAL PRACTICES**

TITLE: **ASSIST IN FARM PLANNING AND LAYOUT
FOR CONSERVATION AND RAINWATER
HARVESTING**

SAQA LOGO :
UNIT STANDARD NO :
UNIT STANDARD LEVEL : 3
CREDIT : 3
FIELD : Agriculture and Nature Conservation
SUB-FIELD : Primary Agriculture
ISSUE DATE :
REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to plan, lay out and develop a maintenance programme for conservation and infrastructure development, and will design, construct and maintain resource use practices that include, but not restricted to, soil and water erosion prevention measures in an agricultural environment.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Apply layout principles for conservation and infrastructure.

SPECIFIC OUTCOMES

A person assessed as competent on this unit standard will be able to:

1. Assist in a land capability analysis to serve as the basis for development of an area or an enterprise selection for the farm.
2. Design and construct prevention structures and infrastructure necessary for area, or the farm enterprise, applying sustainable resource use principles.
3. Design and construct basic infrastructure using simple tools and equipment.
4. Monitor and implement principles of natural resource management and infrastructure maintenance.
5. Maintain, report faults, and where appropriate repair them under supervision.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Assist in a land capability analysis to serve as the basis for development of an area or an enterprise selection for the farm.

Range: “Land capability” may refer to intensive or extensive crop and animal systems, as well as aquaculture, horticultural production systems and/ or human well-being. All types of analysis are included according to purpose of the appropriate basic infrastructure, but not restricted to the analysis soil and water. A comprehensive analysis of the farm or selected enterprise on the farm could be considered.

Assessment criteria:

- 1.1 An understanding of natural resource qualities in relation to conservation and sustainable resource use is demonstrated.
- 1.2 A natural resource survey and physical observation to decide on appropriate land capability options for an identified area, a given farm layout and identified infrastructure needs is used.
- 1.2 Plant, livestock and human needs are included.
- 2 Design and construct prevention structures and infrastructure necessary for the farm area or the farm enterprise applying sustainable resource use principles.

Range: Structures include but are not restricted to bunds, gabions, mulching, wetland protection contours and soil preparation methods. It includes comprehensive tasks related to energy, roads and building infrastructure.

Assessment criteria:

- 2.1 An understanding of conservation principles is demonstrated.
- 2.2 An understanding of maintenance principles is demonstrated.
- 2.3 An understanding of design for the effective working of conservation and constructed applications is demonstrated.
- 2.4 Appropriate designs for the construction of structures are provided.
- 2.5 Designs and elementary requirements for construction of structures are displayed using appropriate media.

- 3 Design and construct all structures using simple tools and equipment.

Range: Simple tools and equipment include but are not restricted to bunds, gabions, mulching, wetland protection contours and soil preparation methods. It includes a variety of tools and equipment appropriate for the construction or maintenance task.

Assessment criteria:

- 3.1 The ability to select the appropriate tools for construction and maintenance is demonstrated.
3.2 Simple tools and equipment is used to construct basic infrastructure.
3.3 The ability to care for and maintain tools and equipment for infrastructure maintenance is demonstrated.

- 4 Monitor implementation of principles for natural resource management and infrastructure maintenance.

Range: All principles for efficient design of layout of the farm and infrastructure, as well as properties of material should be considered.

Assessment criteria:

- 4.1 An understanding to monitor the design of the farm layout and infrastructure according to agricultural, water catchment and environmental conservation principles is demonstrated.
4.2 An understanding of the infrastructure plan is demonstrated.
4.3 The ability to observe and collect data for efficient protection and maintenance is demonstrated.
4.4 The ability to find solutions to correct problems and faults is demonstrated.

- 5 Maintain, report faults, and where appropriate repair them under supervision.

Range: A comprehensive approach should be taken to the maintenance of the layout of the farm and infrastructure. Maintenance of infrastructure is not limited to catchment management methods, protection and regular maintenance tasks.

Assessment criteria:

- 5.1 An understanding of the maintenance of conservation structures and infrastructure related to the selected farm enterprise(s) is demonstrated.
5.2 Causes of destruction, erosion or pollution are identified.
5.3 Maintenance needs are identified.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent. Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-5.
3. **Self-management:** relates to specific outcomes 1-5.
4. **Interpreting Information:** relates to specific outcomes 1-5.
6. **Use Science and Technology:** relates to specific outcomes 1-5.
7. **The world as a set of related systems:** relates to specific outcomes 1-5.
8. **Self-development:** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Role and function of soil and water samples, weather information, vegetation, infrastructure, livestock and crop characteristics, production cycles, records, markets, health and hygiene within production procedures.
2. Description, characteristics and properties of vegetation, infrastructure, weather, production cycles, markets within production procedures.
3. Livestock and crop characteristics.
4. Regulations and legislation related to production procedures.
5. Relationship of outcomes within unit standards in relation to each other and within production procedures.
6. Purpose is to ensure that the learner is able to consider all factors when deciding on what enterprise to establish.
7. Literacy and numeracy skills.
8. Communication and reporting skills.
9. Understand the procedures and principles followed to determine the viability of an enterprise.

INTERMEDIATE KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Understand how the land's capability affects viable land use planning.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.4.1**ANIMAL PRODUCTION**

TITLE	:	EXPLAIN ANIMAL ANATOMY AND PHYSIOLOGY
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to evaluate animals with respect to their internal and external anatomical systems and physiology. In addition they will be well positioned to extend their learning and practice into other areas of animal production and agriculture.

Learners will gain specific knowledge and skills in animal anatomy and physiology and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF Level 2: Explain External Animal Anatomy and Physiology

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and understand the structures, composition and physical and biological components of the various anatomical systems
 2. Identify the interrelated activities pertaining to the various anatomical systems
 3. Identify, understand and evaluate symptomatic variations and abnormalities within living animals, in the various anatomical systems
 4. Identify, understand and evaluate and the probable causes of abnormalities and deviations in the anatomy and physiology of animals
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and understand the structures, composition and physical and biological components of the various anatomical systems.

Range: This includes but is not limited to fish, birds, mammals, insects, crustaceans, reptiles and amphibians as relevant to the context of application.

Assessment criteria:

- 1.1 Animals are anatomically evaluated according to criteria.
- 1.2 The various structures, physical components, products and interrelated changes per anatomical system are evaluated and described.
(*Range:* Products include but are not limited to blood, hormones, enzymes and other glandular secretions, ova, lymph, semen, sperm, digestive fluids, tears, sebum, slime, cochineal, silk, faeces, bee products, meat as relevant to the context of application).
- 1.3 The purpose of the various anatomical systems and structures are explained.

2. Identify the interrelated activities pertaining to the various anatomical systems.

Range: This includes but is not limited to fish, birds, mammals, insects, crustaceans, molluscs, reptiles and amphibians as relevant to the context of application.

Assessment criteria:

- 2.1 Normal interrelated activities pertaining to the various anatomical systems and their products are explained.
- 2.2 Variations, problems and probable causes pertaining to various anatomical systems and their products are explained.
- 2.3 A course of action based on the knowledge related to the interrelated activities within anatomical systems and their products are described.

3. Identify, understand and evaluate symptomatic variations and abnormalities within living animals, in the various anatomical systems.

Assessment criteria:

- 3.1 An understanding of normal symptoms and variations pertaining to the various anatomical systems and their products is demonstrated.
 - 3.2 An understanding of abnormal symptoms and variations and their probable causes, pertaining to the various anatomical systems and their products is demonstrated.
 - 3.3 A course of action based on the perception of the symptoms and variations in anatomical systems and their products is described.
4. Identify, understand and evaluate and the probable causes of abnormalities and deviations in the anatomy and physiology of animals.

Assessment criteria:

- 4.1 The normal anatomy and physiology of animals are described.
- 4.2 Abnormal anatomical and physiological deviations are described.
- 4.3 The possible or probable causes of anatomical and physiological deviations or abnormalities are described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcome 2.
2. **Teamwork:** Relates to outcomes 3 and 4.
3. **Self-Management:** Relates to all outcomes.
4. **Interpreting Information:** Relates to outcome 2.
5. **Communication:** Relates to all outcomes.
6. **Use Science and Technology:** Relates to all outcomes.
7. **The world as a set of related systems:** Relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Dissections technique.
2. Applicable biological names, concepts and terminology.
3. Applicable characteristics and properties of animal anatomical systems and components.

4. Applicable products of the various anatomical systems within animals.
5. Applicable interaction between various interrelated anatomical systems.
6. Applicable sensory cues regarding processes (normal or abnormal) within animals and their anatomical systems.
7. Applicable actions to be performed in the event of various cues being perceived in the animal and its anatomical systems.
8. Appropriate codes of practice, processes, procedures and legislation relating to the handling and evaluation of animals and dissections.
9. The effect of variations in symptoms on the animal and the products of the various anatomical systems.
10. Basic reporting writing technique.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.4.2**ANIMAL PRODUCTION****TITLE : MINIMISE RISK IN ANIMAL MANAGEMENT**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 3

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this standard will be in a position to work with animals with minimum risk to himself, the public and the animal. There will also be an understanding of safe containment procedures. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and animal husbandry to the benefit of the industry.

Learners will gain specific knowledge and skills in animal defensiveness and behaviour and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 3: Explain animal anatomy and physiology.

NQF 2: Respond correctly to control defensive behaviour in animals.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Evaluate risks inherent in handling specific animals or a range of animals.

2. Demonstrate an understanding of systems required to manage or contain animals or a range of animals.
3. Evaluate animal management systems and suggest alternatives methods, processes or steps in safe management of animals.
4. Demonstrate an understanding and describe correct treatment of individuals who have been injured or otherwise affected by an animal or a range of animals.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Evaluate risks inherent in handling specific animals or a range of animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 1.1 Risk management is evaluated, understood and described when working with animals.
- 1.2 The defensive behaviour processes are described.
- 1.3 Tools required to manage specific animals are evaluated and explained.

2. Demonstrate an understanding of systems required to manage or contain animals or a range of animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Ranges of animals include but are definitively not limited to a swarm, a colony, a herd, a flock, a school or a nest, as relevant to the context of operation.

Assessment criteria:

- 2.1 The appropriate infrastructure required for the management of animals is described.
- 2.2 The appropriate requirements for the containment of a specific animal are explained.

3. Evaluate animal management systems and suggest alternatives methods, processes or steps in safe management of animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 3.1 The maintenance of safe animal management systems including equipment and structures are demonstrated.
 - 3.2 Existing animal management systems is evaluated and appropriate comment on the efficacy of such systems is provided.
 - 3.3 Existing animal management equipment is evaluated and appropriate comment of its condition, availability and appropriateness are provided.
 - 3.4 Alternate methodologies, equipment and procedures for the safe management of animals are proposed.
4. Demonstrate an understanding and describe correct treatment of individuals who have been injured or otherwise affected by an animal or a range of animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 4.1 The correct treatment for an individual injured by an animal or animals using is described.
- 4.2 Systems for the safe management of animals is developed and maintained.
- 4.3 Precautions that can be implemented to avoid incidents of conflict is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 4.
2. **Teamwork:** Relates to outcomes 1 to 4.
3. **Self Organisation and Management:** Relates to outcomes 1 to 4.
4. **Communication:** Relates to outcome 4.
5. **Personal Development:** Relates to outcomes 1 to 4.
6. **Interpretation of information:** Relates to outcomes 1 and 2.
7. **The world as a set:** Relates to outcome 4.
8. **Science and technology:** Relates to outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animal's defensive behaviour.
2. Animal science.
3. Science involved in animal behaviour.
4. Sensory observation and evaluation of animal behaviour.
5. Evaluation of dangers of animal behaviour.

6. Containment procedures applicable for various animals.
7. Evaluation of the potential hazards of animals.
8. The treatment of various injuries sustained or reactions shown by those who work with animals.
9. Understanding the need for learning about animal defensiveness and behaviour.
10. Basic First aid.
11. Understanding support networks and structures.
12. Communication models.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.4.3**ANIMAL PRODUCTION**

TITLE	:	APPLY ADVANCED BREEDING PRACTICES FOR FARM ANIMALS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to use and apply advanced breeding practices, such as breeding practices and use of reproductive cycles, in farm animals.

Learners will gain specific knowledge and skills in animal husbandry and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

The profession will benefit in general by having learners trained in the field of breeding, which will contribute to the performance and productivity of the enterprise.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 2: Observe and Inspect Animal Health.

NQF 2: Identify basic breeding practices for farm animals.

NQF 2: Evaluate external animal anatomy and morphology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and classify the signs of giving birth and problem births in female breeding animals.
 2. Demonstrate an understanding of the different breeding methods in farm animals.
 3. Demonstrate an understanding of the basic reproductive cycles of farm animals.
 4. Define the factors affecting the reproductive cycles of farm animals.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and classify the signs of giving birth and problem births in female breeding animals

Range: Breeding animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as related to the context of operation.

Assessment criteria:

- 1.1 Signs of the normal birth process are identified and classified in a group of female breeding animals.
 - 1.2 Birth problems are classified and the level of assistance with such problems is correctly determined.
 - 1.3 Signs of any abnormal behaviour in the birth process is recognised and recorded.
 - 1.4 Animals that are observed to have completed parturition and those that had birth problems are identified and recorded.
 - 1.5 Basic assistance to the animals that are having birth problems are rendered.
2. Demonstrate an understanding of the different breeding methods in farm animals.

Range: Farm animals may include, but is not limited to, cattle, sheep, goats, pigs, horses, poultry, game and fish as related to the context of operation.

Breeding methods include group breeding, hand breeding, artificial inseminations and other as related to the context of operation.

Assessment criteria:

- 2.1 The different breeding methods of farm animals are explained.
 - 2.2 Appropriate breeding methods are applied.
 - 2.3 Advantages and disadvantages of a breeding method are explained according to the enterprise.
3. Demonstrate an understanding of the basic reproductive cycles of farm animals.

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, and fish as related to the context of operation.

Assessment criteria:

- 3.1 Oestrus cycles of female farm animals are described and explained.
- 3.2 The length of the oestrus cycle in the different species of farm animals are defined and compared.
- 3.3 The significance of oestrus cycles is explained and applied to a breeding programme.
- 3.4 The reproductive cycles of male farm animals are explained and integrated into the breeding programme.

4. Define the factors affecting the reproductive cycles of farm animals.

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, and fish as related to the context of operation.

Assessment criteria:

- 4.1 The nutritional factors influencing reproductive cycles are identified and explained.
- 4.2 The influence of the health status of the animal on reproductive cycles is explained and defined.
- 4.3 The seasonal effects on the reproductive cycles is described and illustrated.
- 4.4 The effect of environmental factors on the reproductive cycles is identified and explained.
- 4.5 Factors affecting the reproductive cycles of farm animals are integrated into the breeding programme of the enterprise.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** Relates to outcome 1 to 4.
2. **Problem Solving:** Relates to outcome 1 to 4.
3. **Self-Management:** Relates to outcome 1 to 4.
4. **Communication:** Relates to outcome 1 to 4.
5. **Information Evaluation:** Relates to outcome 1 to 4.
6. **Use of Science and Technology:** Relates to outcome 1 to 4.
7. **Interrelatedness of systems:** Relates to outcome 1 to 4.
8. **Self-development:** Relates to outcome 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Reproductive cycles and breeding methods.
2. Factors affecting the reproductive cycles of farm animals.
3. The advantages and disadvantages of different breeding methods.
4. The effect of nutritional, health, seasonal and environmental factors on reproduction.
5. Breeding procedures and breeding programmes.
6. Purpose of this is to improve knowledge and inclusion of reproductive cycles and breeding methods into a breeding programme.
7. Communication and reporting skills.
8. Record keeping skills.
9. Understanding the correct procedures and policies to be followed for the breeding season.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.4.4**ANIMAL PRODUCTION**

TITLE	:	EXPLAIN THE PREVENTION AND TREATMENT OF ANIMAL DISEASES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to carry out procedures related to animal health and supervise the restraint of animals for such procedures. In addition they will be well positioned to extend their learning and practice into other areas of animal production and veterinary science.

Learners will gain specific knowledge and skills in animal health and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 2: Observe and Inspect Animal Health.
NQF 3: Explain Animal Anatomy and Physiology.
NQF 3: Explain the planning and scheduling of tasks in a production environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Perform the restraint of animals.
 2. Perform basic veterinary procedures.
 3. Treat and vaccinate animals under supervision.
 4. Supervise the carrying out of basic principles of bio-security.
 5. Carry out pre-planned programmes.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Perform animal restraint and related procedures.
Range: Restraint facilities may include but is not limited to holding tanks, crates, hives and crushes, etc. as relevant to the context of application.

Assessment criteria:

- 1.1 Restraint procedures applied correctly.
- 1.2 Incorrect methods of animal restraint are recognised and rectified.
- 1.3 Incorrect practices are correctly identified.

2. Perform basic veterinary procedures.

Range: Basic procedures include but are not limited to temperature determination, ear clipping, dehorning, vaccination, dipping, dosing, animal identification and branding, tattooing, etc. as relevant to the context of application.

Assessment criteria:

- 2.1 Equipment related to veterinary procedures is used correctly.
- 2.2 Veterinary procedures are executed correctly.
- 2.3 The appropriate hygiene procedures are demonstrated and explained.
- 2.4 The procedures relating to specific animals are correctly and appropriately recorded.

3. Treat and vaccinate animals under supervision.

Range: The treatment and vaccination of animals refer to the use of calibrated instruments that may include, but are not limited to syringes, dosing guns and pour-on applicators as relevant to the context of application.

Assessment criteria:

- 3.1 Appropriate hygiene procedures are used and explained.
- 3.2 Instruments are used correctly.
- 3.3 Instruments used are correctly cleaned.
- 3.4 Instruments for re-use are correctly cleaned, packed and stored.
- 3.5 Basic physical examinations of animals are correctly carried out.
- 3.6 Minor ailments are correctly treated.
- 3.7 Basic problems are correctly diagnosed by assessing the symptoms exhibited by the animal.
- 3.8 Treatments applied are correctly and appropriately recorded.

- 4. Supervise the carrying out of basic principles of bio-security.

Range: Bio-security refers to the implementation of a bio-security plan that takes into account the hygiene policies and practices relevant to the context. It includes, but is not limited to the use of systems such as food baths, showers and bait stations as relevant to the context of application. It also includes the use of protective gear that includes but is not limited to gloves, masks and boots.

Assessment criteria:

- 4.1 The correct chemical containers for bio-security are used and checked according to a schedule.
- 4.2 Irregularities are recognised and reported appropriately.
- 4.3 The correct protective gear is used and / or worn.
- 4.4 Chemical containers are correctly filled and / or re-filled.
- 4.5 Waste products and / or empty containers are appropriately collected, cleaned and / or discarded appropriately.
- 4.6 Dead animals and / or other waste are correctly disposed of.

- 5. Carry out pre-planned programmes.

Range: Management programmes may include, but are not limited to, vaccination, dipping and dosing regimes as relevant to the context of application.

Assessment criteria:

- 5.1 Specific programmes are executed according to a determined time schedule.
- 5.2 The programme schedule is explained and interpreted.
- 5.2 A schedule of activities that implements the Management Programme is prepared.
- 5.3 The programme requirements (instruments, chemicals) are on hand.
- 5.4 Deviations from the schedule of activities are reported to a supervisor and alternative suggestions are recommended.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to all outcomes.
2. **Teamwork** relates to all outcomes.
3. **Self-Management** relates to all outcomes.
4. **Communication** relates to all outcomes.
5. **Interpreting information** relates to outcomes 3 and 5.
6. **Science and Technology** relates to outcomes 2 and 4.
7. **The world as related systems** relates to outcome 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and functions of relevant equipment, procedures, implements and instruments related to the study of animal health.
2. The sensory cues and symptoms involved in the execution of pre-planned animal health programmes.
3. The purpose of the implementation of procedures and pre-planned animal health programmes.
4. The implication of the correct and incorrect execution of the procedures under pre-planned programmes.
5. Implemented procedures.
6. All rules and codes of conduct relevant to the procedures implemented.
7. The interrelations between the observations, procedures and the treatment of disease and other animal health issues.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.4.5**ANIMAL PRODUCTION**

TITLE	:	EXPLAIN ELEMENTARY ANIMAL NUTRITION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	6
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to understand the nature and functions of feeds and nutrients and their processing, conservation, storage and utilisation. In addition they will be well positioned to extend their learning and practice into other areas of animal husbandry and agriculture.

Learners will gain specific knowledge and skills in animal feeding and nutrition and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 2: Understand animal nutrition.

NQF 2: Operate and support a food safety and quality management system in the

agricultural supply chain.
NQF 1: Maintain basic water quality.
NQF 2: Explain external animal anatomy and morphology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of the nutritional role of nutrient components.
 2. Identify specific feed ingredients.
 3. Demonstrate an understanding of the basic concepts of animal stimulation, maintenance and production in farm animals and how to apply feed to achieve this.
 4. Demonstrate the ability to prepare, produce and mix feed ingredients.
 5. Demonstrate an understanding of feed security.
 6. Identify and apply sensory indicators of quality in feed.
 7. Demonstrate the ability to interpret and apply corrective measures for abnormal feeding behaviour.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of the nutritional role of nutrient components.

Range: Nutrient components include but are not limited to sugars, amino acids, fatty acid and fibre

Assessment criteria:

- 1.1 The various classes of nutrient components are described.
- 1.2 The origin of various classes of nutrient components is described.
- 1.3 Nutrients required for different forms of animal production, stimulation and maintenance are explained.
(*Range:* Animal production includes but is not limited to the production of consumable food (meat, milk, eggs, bee products), fibre and feathers, reproduction and work as relevant to the context of application.)

2. Identify specific feed ingredients.

Range: Feed includes but is not limited to roughages, cereal grains, oil seeds and cakes, sugar, minerals, whole animals and animal products as relevant to the context of application.

Assessment criteria:

- 2.1 The ability to identify various common ingredients and their origins is demonstrated.

- 2.2 The sources of common ingredients are described.
 - 2.3 The ability to categorise and classify different ingredients is demonstrated.
3. Demonstrate an understanding of the basic concepts of animal stimulation, maintenance and production in farm animals and how to apply feed to achieve this.

Range: Animal production includes but is not limited to the production of consumable food (meat, milk, eggs, and bee products), fibre and feathers, reproduction and work as relevant to the context of application.

Assessment criteria:

- 3.1 Components of basal metabolism (maintenance) are described.
 - 3.2 The ability to identify production output of animal species and how feed influences production is demonstrated.
 - 3.3 The utilisation of feed to stimulate animals to improve is explained.
4. Demonstrate the ability to prepare, produce and mix feed ingredients.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements as relevant to the context of application.

Assessment criteria:

- 4.1 Identification, maintenance and operation of machines and equipment required to process feed are demonstrated.
(Range: Machines include but are not limited to pumps and augers, hammer mills, baggers, cutters, presses and mixers, cages)
 - 4.2 The setting up of machines and equipment and supply of components for the production of specific feed ingredients are demonstrated.
 - 4.3 The importance of the correct preparation of feed ingredients according to instructions and recipes are explained.
 - 4.4 The optimal stages of feed ingredients for the making of feeds are explained.
 - 4.5 Various recipes and processes required for the making of feed are explained
 - 4.6 The various feeds and variations of feed ingredients used to manufacture feeds are identified.
5. Demonstrate an understanding of feed security.

Range: Security risks include but are not limited to theft, rodents, insects, fire, weather, mould and spoilage mechanisms.

Assessment criteria:

- 5.1 The ability to identify possible causes of loss of feed is demonstrated.
- 5.2 Measures to counter each possible source of losses are described.
(Range: counter measures include but are not limited to weatherproofing, pest-control, fire prevention and fire protection procedures, vandal proofing,

preservation (freezing, cooling, dehydration, chemical or bacterial preservation), escape proofing and theft proofing).

5.3 Systems, procedures and controls to prevent the loss of feed are described.

6. Identify and apply sensory indicators of quality in feed.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements as relevant to the context of application.

Assessment criteria:

6.1 Sensory evaluations of positive quality and optimal composition of feeds are demonstrated.

(Range: Sensory indicators include but are not limited to visual, tactile and olfactory attributes, perceivable and actual temperature and moisture content).

6.2 Sensory signs of spoilage in feed are recognised and described.

(Range: Spoilage includes but is not limited to the effects of escape or theft, rodents, insects, fire, weather, mould and spoilage mechanisms).

6.3 Various methods of evaluating quality in feeds are demonstrated.

7. Demonstrate the ability to interpret and apply corrective measures for abnormal feeding behaviour.

Range: Abnormal feeding includes but is not limited to food rejection/selection, abnormal appetite, etc.

Assessment criteria:

7.1 Symptoms of normal feeding behaviour are described.

7.2 Symptoms of abnormal feeding behaviour are described.

7.3 The possible causes are described.

7.4 The corrective measures to be applied to various forms of abnormal feeding behaviour are demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

- 1 **Teamwork:** Relates to outcomes 1 to 7.
- 2 **Problem Solving:** Relates to outcomes 1 to 7.
- 3 **Self-Management:** Relates to outcomes 1 to 7.
- 4 **Communication:** Relates to outcomes 1 to 7.
- 5 **Information Evaluation:** Relates to outcomes 1 to 7.
- 6 **Use of Science and Technology:** Relates to outcomes 1 to 7.

7 **Professional Development:** Relates to outcomes 1 to 7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Basic comprehension and understanding of identification of groups of nutrients, ingredients and feeds in animal maintenance and production
- 2 Identify feed ingredients
- 3 Be able to maintain and operate feed processing machines
- 4 Be competent in feed making and utilisation
- 5 Be familiar with feed storage practices for maintaining security and quality
- 6 Be aware of sensory indicators of good feed quality and spoiled feed
- 7 Ability to interpret abnormal feeding behaviour and apply corrective measures

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.5.1**PLANT PRODUCTION**

TITLE	:	DEMONSTRATE A BASIC UNDERSTANDING OF THE PHYSIOLOGICAL FUNCTIONING OF THE ANATOMICAL STRUCTURES OF THE PLANT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner will be able to identify and describe the physiological processes of the different anatomical structures of the plant.

Learners will gain specific knowledge and skills in plant anatomy and physiology and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Recognise and identify the basic functions of the ecological environment.

NQF 2: Demonstrate a basic understanding of the structure and functions of a plant.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of the structure and basic functioning of a plant cell.
 2. Describe the effect of the environmental on the physiology and germination of the seed.
 3. Describe the anatomy of the root and stem in relation to its function in the translocation of water and nutrients.
 4. Demonstrate an understanding of the anatomy and physiology of a leaf
 5. Identify and describe the anatomical structures of a flower in relation to fruit and seed development.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of the structure and basic functioning of a plant cell.
Range: The structure of a plant cell refers to but is not limited to the cell wall, nucleus, cytoplasm, mitochondria and plastids.

Assessment criteria:

- 1.1 The structure of a plant cell is illustrated and explained.
- 1.2 The functions of the different components of a plant cell are described.
- 1.3 The role of a plant cell in relation to plant growth is explained.
- 1.4 The role of the plant cell in relation to metabolic processes of the plant is described.

2. Describe the effect of the environmental on the physiology and germination of the seed

Range: The environment may include but is not limited to water, temperature and light. Germination refers to the development of the seed after emerging from the seed coat.

Assessment criteria:

- 2.1 The effect certain environmental factors have on seed germination is described.
- 2.2 The process of imbibitions and the rupturing of the seed coat is explained.
- 2.3 The role that the environment plays on the activation of endogenous hormones during germination is explained.

3. Describe the anatomy of the root and stem in relation to its function in the translocation of water and nutrients.

Range: The anatomy refers to the different microscopic parts of the root and stem. Anatomical structures refers to: a) root and root hairs, root cap, root

cells, vascular bundles; b) stem – vascular bundles (consisting of xylem, phloem and cambium), Translocation refers to the movement of water and nutrients to the entire plant.

Assessment criteria:

- 3.1 The basic anatomy of the root is illustrated.
 - 3.2 The characteristics of the xylem vessels and how it functions in the movement of water up a plant is explained.
(Range: Transport refers to movement of water and nutrients from the roots up).
 - 3.3 The transport of organic food by the phloem vessels is explained.
 - 3.4 The role of the cambium in the growth of the vascular bundles is explained.
4. Demonstrate an understanding of the anatomy and physiology of a leaf.

Range: The structure of the leaf includes but is not limited to cuticle, mesophyll, stomata and vascular bundles.

Assessment criteria:

- 4.1 The basic anatomical structure of a leaf is explained.
 - 4.2 An understanding of the function of stomata and its role in gaseous exchange and transpiration is demonstrated.
 - 4.3 The different types of leaf-hairs and their role in transpiration and plant protection is described.
(Range: Plant protection by leaf-hairs refers to specialised cells, which act to reduce transpiration or exude chemicals to protect against insects).
5. Identify and describe the anatomical structures of a flower in relation to fruit and seed development.

Range: Anatomical structures of a flower may include but is not limited to sepals, pistils and petals

Assessment criteria:

- 5.1 The structure of a flower in relation to pollination is described and illustrated.
- 5.2 The process of pollination and the importance of cross-pollination in relation to agricultural systems is explained.
(Range: Pollination refers to but is not limited to the transfer of pollen to the stigma by insects).
- 5.3 The process of fertilization of the ovule and the development of the fruit is explained.
- 5.4 The development of seeds is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 5.
2. **Teamwork:** Relates to outcomes 1 to 5.
3. **Self-Management:** Relates to outcomes 1 to 5.
4. **Interpreting Information:** Relates to outcomes 1 to 5.
5. **Communication:** Relates to outcomes 1 to 5.
6. **Use Science and Technology:** Relates to outcomes 1 to 5.
7. **The world as a set of related systems:** Relates to outcomes 1 to 5.
8. **Self-development:** Relates to outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

1. The learner should be able to identify and describe the various parts of the plant.
2. The function of the various parts of the plant.
3. A learner should realise that the environment plays an important role in the functioning of a plant.
4. A learner should be aware that nature plays a role in the anatomical functions of plants.
5. A learner should know that all functions and structured of a plant are interrelated.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.4.6**ANIMAL PRODUCTION**

TITLE	:	EXPLAIN THE HARVESTING OF ANIMAL PRODUCTS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to identify and describe related animal products and the value adding processes and suggest alternative harvesting methods. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and animal production.

Learners will gain specific knowledge and skills in the harvesting of animal products and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 2: Apply animal harvesting procedures.

NQF 2: Observe and inspect animal health.

NQF 2: Monitor, collect and collate agricultural data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Evaluate animal products that are suitable for harvesting based on their availability and value.
2. Create infrastructure to facilitate the harvesting of animal products.
3. Maintain animal harvesting systems.
4. Evaluate animal harvesting systems and suggest alternatives methods, processes or steps in animal product harvesting systems.
5. Understand and describe the processing of harvested products with special reference to adding value to such harvested animal products.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Evaluate animal products that are suitable for harvesting based on their availability and value.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 1.1 Animal production is evaluated, understood and described.
- 1.2 Knowledge of animals, their products and production processes are demonstrated.
- 1.3 An understanding of the evaluation of availability and condition of infrastructure against the potential of evaluating, establishing or expanding animal product harvesting procedures is demonstrated.

2. Create infrastructure to facilitate the harvesting of animal products.

Range: Infrastructure includes but is not limited to the provision of water, buildings, land use permission, animal feed systems and animal feeds, transport facilities, availability of animals for production, animal retention, management and harvesting equipment and implements as well as equipment and implements required for managing the product as relevant to the context of application.

Assessment criteria:

- 2.1 The establishment of infrastructure to enable animal products to be harvested is demonstrated.
- 2.2 The appropriate requirements of the location of the proposed animal-harvesting site are explained.
- 2.3 The appropriate infrastructure required for the management of animals and animal products is explained.

4. Maintain animal harvesting systems.

Range: Maintenance includes but is not limited to neatness, good order, fireproofing, access, mechanical maintenance, and control.

Assessment criteria:

- 3.1 Animal harvesting systems including equipment, buildings and systems is maintained.
- 3.2 The legal requirements applicable to animal harvesting systems is explained and applied.
- 3.3 Infrastructural tasks are done to comply with legal and maintenance requirements.

4. Evaluate animal harvesting systems and suggest alternative methods, processes or steps in animal product harvesting systems

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 4.1 The harvesting system employed for harvesting animal products are illustrated and described.
- 4.2 The physiology of the animal in relation to the animal products produced is illustrated and described.
- 4.3 Methodologies for implementing productivity enhancements in animal product harvesting systems are illustrated and described.
- 4.4 Alternative animal harvesting steps, processes or methods are implemented.

5. Understand and describe the processing of harvested products with special reference to adding value to such harvested animal products.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 5.1 The animal products harvested including physical, chemical and intrinsic attributes are illustrated and described.
- 5.2 Methodologies for evaluating animal products in relation to their attributes are described.
- 5.3 Various methods of adding value to harvested animal products are explained.
(Range: Value adding includes, but is not limited to the manufacture of products from or including harvested animal products such as cured skins or trophies or clothing, baked or otherwise processed products, cosmetic or medicinal products, bagged fertilisers or feeds, packed frozen, desiccated, preserved, bottled, canned or dehydrated products, altered products such as dairy products as relevant to the context of application.)
- 5.4 Methods or processes to add value to harvested animal products are described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 5.
2. **Teamwork:** Relates to outcomes 2 –5.
3. **Self-Organisation and Management:** Relates to outcomes 1 to 5.
4. **Communication:** Relates to outcomes 4 and 5.
5. **Personal Development:** Relates to outcomes 1 to 5.
6. **Interpretation of information:** Relates to outcomes 1, 2 and 5.
7. **The world as a set:** Relates to outcomes 4 and 5.
8. **Science and technology:** Relates to outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animals and animal products.
2. Animal science.
3. Science involved in animal products.
4. Sensory observation and evaluation animal products.
5. Evaluation of animal product processing systems over time.
6. Maintenance requirements of animal product processing systems.
7. Evaluation of the potential of animal products for adding value.
8. The purpose of learning about animal product processing.
9. Basic processing systems methodology.
10. Animal product processing technology.
11. Basic record keeping.
12. Observation and understanding of sensory cues in processing systems.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.5.2**PLANT PRODUCTION**

TITLE : **MONITOR AND CO-ORDINATE THE HARVESTING OF AGRICULTURAL PRODUCTS**

SAQA :

UNIT STANDARD LEVEL : 3

CREDIT : 4

FIELD : Agriculture And Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to supervise the harvesting of crops according to the necessary procedures making use of harvesting tools as described in the harvest plan.

Learners will gain specific knowledge and skills in harvesting procedures and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Harvest Agricultural crops: Procedures.

NQF 3: Explain the planning and scheduling of tasks in a production environment.

NQF 2: Utilise and perform minor repairs and maintenance tasks on implements, equipment and infrastructure.

NQF 3 Demonstrate a basic understanding of the physiological functioning of the anatomical structures of the plant.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Select harvesting equipment and tools for specific agricultural enterprise.
2. Demonstrate an understanding of sampling for maturity indexing.
3. Demonstrate an understanding of the harvesting of crops according to harvesting plan.
4. Implement a health, hygiene and safety plan during harvesting.
5. Implement the waste collection and disposal plan.
6. Manage the care and maintenance of harvesting equipment.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Select harvesting equipment and tools for specific agricultural enterprise.

Range: Harvesting methods according to specific production context include, but are not limited to harvesting by hand, machine harvesting, etc. Tools or equipment include but are not limited to picking shears, knives, mechanical harvesters, etc.

Assessment criteria:

- 1.1 The type of tools needed to harvest the crops planted in the specific agricultural enterprise is described.
(Range: Tools, according to specific production context include, but are not limited to hands, trays, crates, picking bags, shears, ladders, etc.)

- 1.2 The use and coordination of harvesting equipment during the harvesting process is explained.
 - 1.3 The process that is implemented to enable workers to report any malfunction of the harvesting equipment is described.
 - 1.4 A problem solving strategy is described.
2. Demonstrate an understanding of sampling for maturity indexing.

Range: Maturity indexing may include, but is not limited to stage of growth of crop, sugar levels, size, colour, texture, ratios of one chemical versus another, level of ethylene production, etc.

Assessment criteria:

- 2.1 The maturity-indexing plan that is implemented for the specific agricultural enterprise is described and explained.
 - 2.2 The collection of samples and responsibility of collection is explained.
 - 2.3 The recording of maturity indexing information is explained.
3. Demonstrate an understanding of the harvesting of crops according to harvesting plan.

Range: Procedures include, but are not limited to quality specifications, maturity specifications, weather data, withholding periods, etc.

Assessment criteria:

- 3.1 The different factors that can influence the harvesting of the crop are explained.
 - 3.2 The harvesting process of the crop and how a harvesting plan is implemented are described.
 - 3.3 The importance of a harvesting plan with relation to the other operations of the enterprise is explained.
 - 3.4 Management of the harvesting process to ensure a quality product reaches the shelf or processing plant is described.
 - 3.5 Special requirements for harvesting are described.
4. Implement a health, hygiene and safety plan during harvesting.

Range: Health, hygiene and safety plan includes but is not limited to ensuring that one worker has basic first aid skills per group harvesting, that a first aid kit is available and that the workers know where it is, that toilet and hand-washing facilities are within walking distance from the area.

Assessment criteria:

- 4.1 The main components of the organisations health, hygiene and safety plan are explained.
- 4.2 The relationship of the health, hygiene and safety plan to the OHSA, and other requirements such as EUREPGAP, BRC, HACCP are explained.

- 4.3 An understanding of how health, hygiene and safety of both the harvested crop and the person harvesting are ensured is demonstrated.
 - 4.4 The process followed in case of an emergency is described.
5. Implement the waste collection and disposal plan.

Range: Waste includes but is not limited to bio-degradable materials (include parts of plants, fruit, flowers, etc.) and non bio-degradable materials (plastics, glass, metals, etc.) A waste collection and disposal plan could include but is not limited to evaluating what can be recycled, how and where and what must be dumped, where and how.

Assessment criteria:

- 5.1 An understanding of how waste from the harvesting process is identified and classified is demonstrated.
 - 5.2 An understanding of how colleagues are encouraged to keep the harvest area clean of waste and why this is important is demonstrated.
 - 5.3 Implementation of a waste disposal plan is explained.
 - 5.4 Monitoring, evaluation and control of the waste disposal plan is explained.
 - 5.5 The need for keeping records of waste and disposal and how this assists the disposal plan is explained.
6. Manage the care and maintenance of harvesting equipment.

Range: Care and maintenance includes but is not limited to cleaning, sanitizing, doing basic maintenance and repairs etc.

Assessment criteria:

- 6.1 The basic plan that implemented for caring and maintenance of harvesting equipment is described.
- 6.2 The strategy of how the workers are encouraged to care, maintain and store equipment correctly is described.
- 6.3 Routine maintenance is described.
- 6.4 An understanding of the process implemented to report major problems with equipment is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** All specific outcomes.
2. **Self-development:** Relates to all specific outcomes.
3. **Communication:** Relates to all specific outcomes.
4. **Information interpretation:** Relates to all specific outcomes.
5. **Inter-relatedness of Systems:** Relates to all specific outcomes.
6. **Problem Solving:** Relates to all specific outcomes.
7. **Self Management:** Relates to all specific outcomes.
8. **Use science and technology:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Principles of harvesting a crop is understood.
2. Names and functions of tools and materials.
3. Safe handling procedures of tools and materials.
4. Various harvesting methods are understood.
5. Plant physiology and anatomy.
6. Importance of harvesting area being clean from waste material.
7. Basic knowledge of occupational health and safety appropriate to level.

SUPPLEMENTARY INFORMATION

NOTES

This person should be able to function in a management position and should have the ability to make sound decisions regarding the operation as well as guide subordinates in the process of harvesting and related issues.

END

LEVEL 3.5.3**PLANT PRODUCTION**

TITLE	:	MONITOR THE OPERATION AND MAINTENANCE OF IRRIGATION SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this Unit Standard will, under superficial supervision, be able to irrigate a variety of crops and efficiently operate and maintain a variety of different irrigation systems.

Learners will gain specific knowledge and skills in irrigation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Operate And Maintain Specific Irrigation Systems.

NQF 3: Apply routine maintenance and servicing plans and procedures.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Modify and implement irrigation schedules for various crops.
 2. Ensure the efficient operation of irrigation systems.
 3. Collect and record data in an agricultural field.
 4. Prepare maintenance programmes for irrigation systems.
 5. Supervise irrigation activities.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Obtain, implement and, if necessary, modify irrigation schedules for various crops.

Range: Includes but is not limited to the implementation of prescribed programmes, adaptation of programmes as a result of soil structure/depth, age of crop, growth of crop, prevailing climatic conditions, etc.

Assessment criteria

- 1.1 The strategy to ensure that staff understands the requirements of the scheduling programme is explained.
(Range: Start/stop time, flow rate, etc.)
- 1.2 The scheduling of all programmes are implemented as prescribed.
(Range: All adaptations/changes to prescribed schedules, and the reasons for it, must be noted and reported to the Irrigation Manager.)
- 1.3 If required, irrigation schedules are adapted according to ambient weather conditions.
(Range: Occurrence of rain, "berg wind" conditions, danger of frost, etc.)
- 1.4 Based on observation (visual/measured) improvements/weaknesses to irrigation schedules are be suggested.

- 2 Ensure the efficient operation of irrigation systems.

Range: Includes but is not limited to checking the functioning of pumps and motors, valves, timers, filters, sprinklers, etc.

Assessment criteria

- 2.1 All prescribed pre-season irrigation system checks/inspections has been undertaken.
- 2.2 All prescribed start up/shut down procedures have been completed.
- 2.3 All post-season shut down procedures have been carried out.
- 2.4 All irrigation systems are operating as prescribed.
(Range: Pressure/flow rate, amps, volts, water distribution, times shifting of pipes, etc.)

- 3 Collect and record data pertaining to irrigation of crops.

Range: Includes but is not limited to soil moisture recorders (tensiometers, evaporation pans, neutron probes, manual determination of soil moisture, etc.), climatic data (manual/automatic weather stations), water application, fertigation, stage of crop growth, etc.

Assessment criteria

- 3.1 Event recorders installed as prescribed.
(Range: Soil moisture recorders, rain gauges, evaporation pans, etc.)
- 3.2 Relevant data collated and recorded as prescribed.
- 3.3 Event recorders maintained and serviced as prescribed.
- 3.4 Recorder problems noted and reported to Irrigation Manager.

- 4 Prepare maintenance programmes for irrigation systems.

Range: Includes but is not limited to daily, weekly, seasonal maintenance, preventative maintenance, unforeseen maintenance, etc.

Assessment criteria

- 4.1 Long-term maintenance plans based on life expectancy of equipment prepared.
(Range: Pumps, motors, sprinklers, etc.)
- 4.2 Contingency plans for emergency situations prepared.
(Range: Floods (removal of pumps and motors from rivers), sub-station safety, chemical spills, etc.)
- 4.3 The preparation of budgets for new equipment/spares is described.
- 4.4 Procurement of new equipment/spares is explained.

- 5 Supervise irrigation activities.

Range: Includes but is not limited to implementing Irrigation Manager's instructions, supervising junior workers (staff), adapting/modifying in-field operations as, and when required, preparing daily work programmes for his staff, etc.

Assessment criteria

- 5.1 Prescribed irrigation scheduling programmes implemented.
- 5.2 The ability to identify, solve and/or adapt scheduling programmes to suit prevailing conditions is demonstrated.
(Range: Adapting pipe spacing, water pressure, etc. to prevailing wind conditions, etc.)
- 5.3 The ability to ensure that all irrigation systems are operating as prescribed is demonstrated.
(Range: Correct amps, volts, flow rates, pressures, etc.)
- 5.4 Staff safety regulations are explained.
(Range: Safety clothing, handling of chemicals, etc.)

- 5.5 Problems/situations that require the input/support of the Irrigation Manager are identified and described.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-5.
2. **Teamwork** relates to specific outcomes 1-5.
3. **Self-organisation and management** relates to specific outcomes 1-5.
4. **Information evaluation** relates to specific outcomes 1-5.
5. **Communication** relates to specific outcomes 1-5.
6. **Use science and technology** relates to specific outcomes 1-5.
7. **Inter-relatedness of systems** relates to specific outcomes 1-5.
8. **Self-development** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Occupational Health and Safety Act.
2. Regulations pertaining to water/irrigation utilization.
3. Names and functions of All tools and equipment used during irrigation.
4. Names and functions of Irrigation systems and components used in a particular crop.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.5.4**PLANT PRODUCTION****TITLE : MONITOR PLANT MANIPULATION**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 3

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to monitor and supervise the training (manipulation) of plants by applying a broad range of techniques. Learners achieving this unit standard will be able to apply their skills and capacity in a variety of production environments and be able to contribute towards to overall productivity of a production enterprise by maximizing growth and yield.

Learners will gain specific knowledge and skills in plant manipulation procedures and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 2: Apply plant manipulation methods.

NQF 2: Utilise and perform minor repairs and maintenance tasks on implements, equipment and infrastructure.

NQF 3: Demonstrate a basic understanding of the physiological functioning of the anatomical structures of the plant.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Monitor and supervise the use of appropriate tools / equipment for pre-determined manipulation methods
2. Monitor and supervise framework development principles as part of plant manipulation methods.
3. Monitor and supervise flower and fruit manipulation.
4. Monitor and supervise pruning as vegetative plant manipulation methods appropriate to the crop

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

1. Monitor and supervise the use of appropriate tools and / or equipment for plant training and manipulation.

Range: Manipulation methods may include, but are not limited to, framework development, flower and fruit manipulation and pruning. Tools may include, but are not limited to, pruning shears, tie-back material, trellising and spraying equipment etc.

Assessment criteria:

- 1.1 The correct tools to perform the specified and identified manipulation method on a specific crop are selected.
- 1.2 Incorrect methods used by another worker are identified and the correct procedure explained.
2. Monitor and supervise framework development principles as part of plant manipulation methods.

Range: Trellising methods include, but are not limited to Central leader system, Tatura system, two wire system, slanted cap, factory-cap, Façade system, etc

Assessment criteria:

- 2.1 Trellising principles for application of the trellising system and manipulation are explained.
 - 2.2 The development of the framework of the plant trellising system is monitored and guidance for correct procedures is given to the other worker.
 - 2.3 The manipulation of growing points and bearing units is supervised and guidance provided where incorrect methods are used.
 - 2.4 The shaping of the plant, to determine the position of bearing units, is supervised and guidance is given when incorrect methods are used.
3. Monitor and supervise flower and fruit manipulation principles.

Range: Flower and fruit manipulation principles may include, but are not limited to, temperature, daylight length, bud dormancy breakers, thinning, shouldering, brushing, shorting, fruit enlargement, ripening, and chemical and physical quality improvement methods.

Assessment criteria:

- 3.1 The appropriate fruit and flower manipulation actions and principles are identified and explained.
 - 3.2 The correct and appropriate chemicals for spraying are selected.
 - 3.3 The correct safety precautions and sanitary procedures are demonstrated.
4. Monitor and supervise pruning principles as vegetative plant manipulation methods appropriate to the crop

Range: Pruning includes, but is not limited to summer and winter pruning, and canopy management, etc., as is appropriate for the identified crop.

Assessment criteria:

- 4.1 The removal of unwanted growth from plant is explained.
- 4.2 Vegetative manipulation and pruning principles are explained.
Range: vegetative manipulation may include but is not limited to, winter pruning, summer pruning, canopy management, and the trellising of shoots.
- 4.3 Correct procedures undertaken by another worker are adjusted and maintained, as required.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 4.
2. **Teamwork:** Relates to outcomes 1 to 4.
3. **Self-Management:** Relates to outcomes 1 to 4.
4. **Interpreting Information:** Relates to outcomes 1 to 4.
5. **Communication:** Relates to outcomes 1 to 4.
6. **Use Science and Technology:** Relates to outcomes 1 to 4.
7. **The world as a set of related systems:** Relates to outcomes 1 to 4.
8. **Self-development:** Relates to outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Tools for manipulation of plants.
2. Trellising methods.
3. Flower manipulation and fruit manipulation methods.
4. Pruning methods.
5. The principles of manipulation of a plant.
6. Names and functions of tools and materials.
7. Safe handling procedures of tools and material.
8. Maintaining hygienic procedures of tools and material as to prevent spreading of diseases.
9. Plant physiology and anatomy.
10. Supervision of workers.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.5.5**PLANT PRODUCTION**

TITLE	:	MONITOR PESTS, DISEASES AND WEEDS ON CROPS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this standard will be able to recognize, monitor and apply basic control of insects, plant diseases and common weeds, in a specific agricultural enterprise. In addition they will be able to report their findings to management or advisors.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of pest control practices in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Demonstrate a basic understanding of the physiological functioning of the anatomical structures of the plant.

NQF 2: Control pests and diseases and weeds on crops effectively and responsibly.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Monitor the common pests prevalent in the specific agricultural enterprise.
 2. Demonstrate a basic knowledge of trapping, monitoring and recording the incidence of pests, diseases and weeds.
 3. Collect insects not familiar and that had been identified.
 4. Monitor the symptoms of disease associated with the agricultural enterprise.
 5. Monitor and report the incidence of weeds in the agricultural enterprise
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Monitor the common pests prevalent in the specific agricultural enterprise.

Range: Monitoring includes but is not limited to visual scouting of plant material and monitoring of traps etc.

Assessment criteria:

- 1.1 The pest monitoring process for the specific agricultural enterprise is explained.
 - 1.2 The significance for the monitoring of pests is explained.
 - 1.3 The differences between pests and predators are explained.
 - 1.4 The relationship between pests and predators with relation to control measures is explained.
 - 1.5 The ability to observe, categorize and report any new plant damage is demonstrated.
 - 1.6 The importance of the recording of data is explained.
-
2. Demonstrate a basic knowledge of trapping, monitoring and recording the incidence of pests, diseases and weeds.

Range: Trapping includes but is not limited to pheromone traps, sticky traps, pit-fall traps etc, monitoring includes but is not limited to checking of traps, assessing leaves, branches, stems, fruit etc. and recording includes but is not limited to verbal, written or mechanical.

Assessment criteria:

- 2.1 The different types of traps that can be used in pest monitoring is explained.
- 2.2 The significance of these traps and how they are assessed is explained.
- 2.3 The techniques of monitoring pests when traps are not used are explained.
- 2.4 The monitoring of diseases and weeds is explained.
- 2.5 Different methods of recording the data are explained.

2.6 The use of data to control pests is explained.

3 Collect insects not familiar and that had been identified.

Range: Collecting of pests includes but is not limited to placing unknown pests in containers and preparing it to be sent for identification or sending insect trap bottoms with unknown insects to a laboratory for identification.

Assessment criteria:

3.1 The need to trap, collect and send unknown pests for identification especially when occurring in large numbers is explained.

3.2 The way in which these pests will be collected and where they could be sent for identification is described.

3.3 The reasons for identifying pests are explained.

4. Monitor the symptoms of disease associated with the agricultural enterprise.

Range: Diseases include but are not limited to diseases on crops, those of animals, or any other agricultural enterprise.

Assessment criteria:

4.1 The basic symptoms are which would be looked for when one suspects a disease are described.

4.2 Damage, disease symptoms and weeds are interpreted and explained.

4.3 The monitoring of disease symptoms is explained.

4.4 The possible measures that can be implemented to control diseases before it reaches problem status is described.

4.5 The strategy to treat an unknown disease is described.

4.6 The identification of diseases from plant material is described.

5 Monitor and report the incidence of weeds in the agricultural enterprise.

Range: Weeds include but are not limited to unwanted plant growth in an agricultural enterprise.

Assessment criteria:

5.1 The characteristics of the most common weeds associated with the agricultural enterprise are explained.

5.2 Monitoring and control of weeds is described.

5.3 The collection of unknown seed is explained.

5.4 The strategy to identify unknown seed is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Self-organisation and management** relates to specific outcomes 1 to 4.
3. **Information evaluation** relates to specific outcomes 1 to 4.
4. **Communication** relates to specific outcomes 1 to 4.
5. **Science and technology** relates to specific outcomes 1 to 4.
6. **The world as a set of related systems:** relates to specific outcomes 1 to 4.
7. **Self-development** relates to specific outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Insect anatomy.
2. Common plant diseases.
3. Common pests.
4. Common predators.
5. Common beneficial insects.
6. Common diseases.
7. Life cycle of an insect.
8. Natural enemies.
9. Ways of spreading.
10. Contamination.
11. Implication of contamination on the quality and marketability of the product.
12. Importance of hygiene.
13. Scouting procedures.
14. Record keeping.
15. Hygiene.
16. Spreading of pests and diseases.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.5.6**PLANT PRODUCTION**

TITLE	:	EXPLAIN THE PROPAGATION OF PLANTS.
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to propagate plants.

Learners will gain specific knowledge and skills in plant propagation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Demonstrate a basic understanding of the physiological functioning of the anatomical structures of the plant.

NQF 2: Demonstrate an understanding of plant propagation.

NQF 2: Monitor water quality.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of the function of environmental requirements for propagation within a specific agricultural production context.
 2. Demonstrate an understanding of the general propagation procedures and select appropriate procedures within a specific agricultural production context.
 3. Monitor environmental conditions in the propagation area within a specific agricultural production context.
 4. Choose and apply the necessary tools for the propagation within a specific agricultural production context.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of the function of environmental requirements for propagation within a specific agricultural production context.

Range: The propagation environment includes, but is not limited to, open field and protective structures related to the environmental needs of humidity, ventilation, temperature, light intensity and moisture.

Assessment criteria:

- 1.1 The specific environmental requirements for the propagation of plants within a specific agricultural production context are explained.
- 1.2 The role of the different environmental requirements for the propagation of plants within a specific agricultural production context is described.
- 1.3 An understanding of how problems within the propagation environment of the specific agricultural production context, confined to routine tasks, are solved, is demonstrated.

2. Demonstrate an understanding of the general propagation procedures and select appropriate procedures within a specific agricultural production context.

Range: Propagation procedures include, but are not limited to, direct sowing, seedling tray, seedbed, vegetative cuttings of rhizomes, corms, tubers, scaling of bulbs and tissue culture.

Assessment criteria

- 2.1 The propagation procedure for a specific agricultural production context is demonstrated.
- 2.2 The parts of the plant used in a specific propagation procedure are described.
- 2.3 The requirements for the specific propagation procedure are explained.

- 2.4 The necessary hygiene and safety requirements for the appropriate procedure is described.
- 2.5 The tools used in the specific propagation procedure is described.
- 3. Monitor environmental conditions in the propagation area within a specific agricultural production context.

Range: The environmental conditions may include but are not limited to humidity, ventilation, temperature, light intensity, moisture, etc.

Assessment criteria:

- 3.1 An understanding of how different environmental conditions are monitored for the specific propagation process is demonstrated.
- 3.2 The keeping of accurate records of environmental conditions are explained.
- 3.3 An understanding of how significant unplanned changes in environmental conditions are recognised, reported and appropriately amended under general supervision is demonstrated.
- 3.4 An understanding of how the environmental conditions of a controlled growing environment are changed according to specified criterion, in order to meet the needs of a specific crop is demonstrated.

- 4. Choose and apply the necessary tools for the propagation within a specific agricultural production context.

Range: Tools include but are not limited to pruning shears, budding knives, scalpels, gas flames, laminar flow bench etc. Hygiene requirements include but are not limited to sterilization, radiation, alcohol washes etc. Safety requirements include but are not limited to using eye protection, hand protection, clothes etc.

Assessment criteria:

- 4.1 The most appropriate tool for the specific propagation procedure is described.
- 4.2 An understanding of why the specific tool is used for that specific propagation procedure is demonstrated.
- 4.3 The necessary hygiene requirements associated with the procedure are demonstrated.
- 4.4 The necessary safety requirements needed when using the specific tools is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 5.
2. **Teamwork:** Relates to outcomes 1 to 5.
3. **Self-Management:** Relates to outcomes 1 to 5.
4. **Interpreting Information:** Relates to outcomes 1 to 5.
5. **Communication:** Relates to outcomes 1 to 5.
6. **Use Science and Technology:** Relates to outcomes 1 to 5.
7. **The world as a set of related systems:** Relates to outcomes 1 to 5.
8. **Self-development:** Relates to outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic safety requirements related to the propagation environment, tools and procedures.
2. Basic hygiene requirements for the propagation environments.
3. Growing media – wet and dry.
4. Weeds, pest and diseases.
5. The safe handling of hormone and Chemicals preparations (rooting powders and plant protection substances)

SUPPLEMENTARY INFORMATION

NOTES

This person should be able to function in a management position and should have the ability to make sound decisions regarding the operation as well as guide subordinates in the process of harvesting and related issues.

END

LEVEL 3.5.7**PLANT PRODUCTION**

TITLE	:	MANAGE SOIL FERTILITY AND PLANT NUTRITION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to supervise application of soil nutrient preparations in a safe, effective and responsible manner for the benefit of plant/crop growth with consideration to the environment.

Learners will gain specific knowledge and skills in soil and plant nutrition and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standard

NQF 2: Understand Basic Soil Fertility and Plant Nutrition.

NQF 3: Supervise the collection of agricultural data.

NQF 3: Understand the planning and scheduling of tasks in a production environment.

NQF 3: Interpret and maintain factors influencing agricultural enterprises and plan accordingly.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Prepare for soil nutrient applications using specialized equipment.
 2. Supervise the collection of samples, storage and dispatch of samples to appropriate service providers.
 3. Demonstrate an understanding of the properties of soil and how these impact on plant nutrition and soil preparation.
 4. Identify and interpret symptoms of nutritional deficiencies in various crops and make basic recommendations.
 5. Supervise and implement soil preparation and remediation.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Prepare for soil nutrient applications using specialized equipment.
Range: Nutrient application refers to but is not limited to fertiliser or compost spreaders and planters.

Assessment criteria:

- 1.1 The ability to use specialized equipment is demonstrated.
- 1.2 The ability to calibrate specialized equipment is demonstrated.
- 1.3 The ability to select the appropriate nutrients for application from storage facilities is demonstrated.
2. Supervise the collection of samples, storage and dispatch of samples to appropriate service provider.

Range: Samples for leaf, soil and fruit analysis

Assessment criteria:

- 2.1 The ability to take and handle leaf, soil and fruit samples according to prescribed procedures are demonstrated.
- 2.2 The process of recording and dispatching the samples to the appropriate service provider is explained.
3. Demonstrate an understanding of the properties of soil and how these impact on plant nutrition and soil preparation.

Range: Soil properties may include chemical, physical and biological properties.

Assessment criteria:

- 3.1 The impact of soil properties on plant nutrition is explained.
- 3.2 The impact of soil properties on soil preparation is explained.

- 4. Identify and interpret symptoms of nutritional deficiencies in different crops and make basic recommendations.

Range: Macronutrients may include (among others) Nitrogen, Phosphorous, Potassium and Calcium. Micronutrients may include (among others) Boron, Zinc, Iron and Manganese.

Simple recommendations on steps to correct nutrient deficiencies.

Assessment criteria:

- 4.1 The relationship between plant abnormalities and deficiencies of specific macro- and micro- nutrients is explained.
- 4.2 Basic recommendations for improving soil fertility are made.

- 5. Supervise and implement soil preparation and remediation.

Range: Soil preparation methods refer to mechanical and non-mechanical approaches, minimum tillage, no tillage, and both primary and secondary soil preparation. Remediation includes methods of dealing with acidity and Aluminium or Iron toxicity, water logging, compost making, etc.

Assessment criteria:

- 5.1 An understanding of the special cultivation needs of various soils is demonstrated.
- 5.2 Appropriate implements and/or methods for soil preparation is selected.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to all specific outcomes.
2. **Teamwork:** Relates to all specific outcomes.

3. **Self-management:** Relates to all specific outcomes.
4. **Interpreting Information:** Relates to all specific outcomes.
5. **Communication:** Relates to all specific outcomes.
6. **Use Science and Technology:** Relates to all specific outcomes.
7. **The world as a set of related systems:** Relates to all specific outcomes.
8. **Self-development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Sampling procedures.
2. Chemical, properties of soil – pH, Nutrient status.
3. Physical properties of soil – Texture, structure, soil profiles.
4. Biological properties of soil.
5. Soil ecology e.g. soil organisms, food webs, role of water and oxygen in soil.
6. Soil health and conservation.
7. Role of living organisms.
8. Conservation practices – Runoff control, contours.
9. Tillage operations - mechanical, non mechanical, organic, Minimum and zero Tillage and application of nutrients (liquid and solid).
10. Primary and secondary soil preparation methods.
11. Soil preparation and Fertiliser application equipment.
12. Nutrients – Mixtures, limes, calcite and dolomite lime, single nutrients and compost, liquids, etc.
13. Calibration of equipment.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.1**ELECTIVE****TITLE:****EXPLAIN DAIRY PRODUCTION**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

3

CREDITS:

6

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE:

The learner achieving this unit standard will be able to describe the percentage range of major components of standard milk, know in broad terms the major end products of milk processing found in the market place and will be able to supervise all activities in the milking parlour. In addition they will be well positioned to extend their learning and practice into other areas of food production and agriculture.

Learners will gain specific knowledge and skills in dairy production and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF2: Explain dairy production cleanliness

NQF3: Observe and inspect animal health.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Describe the acceptable standard range of components of whole milk.
2. Identify and briefly describe the common end products of milk processing.
3. Identify the main types of market outlets for the milk producer.
4. Critically assess parlour hygiene routines.
5. Critically monitor efficiency of milk cooling devices.
6. Critically assess milking methods in use.
7. Ensure regular recording routines are applied.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Describe the acceptable standard range of components of whole milk

Assessment criteria:

- 1.1 Minimum and normal levels of milk fat in milk of common dairy animals is defined.
- 1.2 The normal average level of solids-not-fat (SNF) in milk of common dairy animals is defined.
- 1.3 Milk samples for the various components by means of pre-programmed procedures are sampled and evaluated.

2. Identify and briefly describe the common end products of milk processing.

Range: End products include, but are not limited to butter, cheese, whey, maas, buttermilk or yoghurt

- 2.1 The ability to define raw, pasteurised, homogenized and sterilized whole milk is demonstrated.
- 2.2 The ability to distinguish between raw and pasteurised milk is demonstrated.
- 2.3 The ability to compare the different processed milk products is demonstrated.
- 2.4 The ability to understand the processes required to produce various end milk products is demonstrated.

3. Identify the main types of market outlets for the milk producer.

Assessment criteria:

- 3.1 The ability to distinguish between markets is demonstrated.
(Range: Markets for milk include but are not limited to direct sales to the public sales to a central depot or processing plant, on farm use.)
 - 3.2 The ability to illustrate examples of simple on-farm milk processing is demonstrated.
 - 3.3 The ability to distinguish between various milk products provided to various markets based on type and quality is demonstrated.
4. Critically assess parlour hygiene routines.

Assessment criteria:

- 4.1 Factors affecting cleanliness and hygiene in milk parlours is explained.
 - 4.2 The ability to sample for analysis of bacterial load in the milk parlour is demonstrated.
 - 4.3 The ability to identify inadequately cleaned sites is demonstrated.
 - 4.4 Factors affecting cleanliness of utensils and machines is explained.
 - 4.5 The ability to identify areas in utensils that are not cleaned effectively is demonstrated.
 - 4.6 The ability to identify weaknesses in the cleaning procedure for milking machines is demonstrated.
 - 4.7 The ability to institute corrective procedures is demonstrated.
5. Critically monitor efficiency of milk cooling devices.

Assessment criteria:

- 5.1 Acceptable milk target temperatures are explained.
- 5.2 The ability to identify whether cooling devices are working effectively is demonstrated.
- 5.3 The ability to report and institute corrective action for any inefficiencies in the cooling system is demonstrated.

6. Critically assess milking methods in use

Assessment criteria:

- 6.1 The need for orderly milking routines is explained.
- 6.2 The ability to ensure regular flow of animals in and out of the parlour based on the system used is demonstrated.
- 6.3 The ability to ensure optimum operating vacuum pressure of milking machines is demonstrated.

6.4 The ability to monitor the milking duration and completeness of milking of each individual animal and in a group is demonstrated.

7. Ensure regular recording routines are applied.

Assessment criteria:

7.1 The ability to ensure maintenance of milk records is demonstrated.

7.2 The ability to ensure mastitis incidence records is demonstrated.

7.3 The ability to ensure maintenance of stored milk temperature records is demonstrated.

7.4 The ability to ensure oestrus incidence of individual animals is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to outcomes 3 – 7.
2. **Teamwork** relates to outcomes 3 – 7.
3. **Self-management** relates to outcomes 1- 7.
4. **Communication** relates to outcomes 1 – 7.
5. **Interpret information** relates to outcomes 3 – 7.
6. **Science and Technology** relates to outcomes 1-7.
7. **The world as related systems** relates to outcomes 1-7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of

1. The names and functions of relevant equipment, procedures and implements related to the milking parlour.
2. The sensory cues and systems involved in the parlour management.
3. The purpose of the implementation of specific procedures in the milking parlour.
4. The implication of the incorrect execution of procedures in the milking parlour.
5. Implemented procedures.
6. All applicable rules and codes of conduct relating to the handling and observation of animals and parlour hygiene.

7. The interrelations between the observations, procedures, the execution of procedures and the animal health issues.
8. Develop a two-way relationship with manager and co-workers in regard to responsibilities and reporting (Communication Skills).
9. Identify the various end products of milk parlours.
10. Hygiene.
11. Basic pathology.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.2**ELECTIVE**

TITLE	:	MANAGE SITES FOR BEE KEEPING
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to manage areas within the environment where sites for bees might be established or where opportunities for bee placement might exist. In addition they will be well positioned to extend their learning and practice into other areas of beekeeping and agriculture.

Learners will gain specific knowledge and skills in hive management and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 2: Consider plant botany during the placement of bee hives.

NQF 2: Demonstrate a basic understanding of the structure and functions of a plant.

NQF 2: Understand basic soil fertility and plant nutrition.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Evaluate environmental niches that are suitable as bee sites or for bee placement.
 2. Create infrastructure to facilitate the establishment of bee sites or bee placement.
 3. Maintain bee sites or placements.
 4. Demonstrate an understanding and describe basic pollination biology with specific reference to nectar and pollen production in flowering commercial plants and the various pollinating agents.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Evaluate environmental niches that are suitable as bee sites or for bee placement.

Range: Environmental niches for bee sites or placement include but are not limited to areas of natural vegetation, agricultural areas (including plantings requiring pollination by honeybees, forestry areas, urban areas or other sources of flowering plants

Assessment criteria:

- 1.1 The ability to use bee production requirements to evaluate, establish or expand environmental niches, which could be suitable for bee sites or hive placement, are demonstrated.
- 1.2 The ability to use knowledge of bee plants to evaluate, establish or expand environmental niches, which could be suitable for bee sites or hive placements, is demonstrated.
- 1.3 The ability to evaluate the presence, availability and condition of infrastructure against the potential of evaluating, establishing or expanding bee sites or hive placements is demonstrated.

2. Create infrastructure to facilitate the establishment of a bee site or placement.

Range: Infrastructure includes but is not limited to the provision of water, fencing, access roads, land use permission, transport facilities, availability of bee plants.

Assessment criteria:

- 2.1 Establishment of communication with the landowner to ensure access is explained.
- 2.2 The ability to determine the exact and appropriate location of the proposed bee site or hive placement is demonstrated.
- 2.3 The ability to determine and establish the appropriate infrastructure required for the creation of a bee site or hive placement is demonstrated.

3. Maintain bee sites or placements.

Range: Maintenance includes but is not limited to neatness, good order, fire-proofing, fencing, access, payment, weed control.

Assessment criteria:

- 3.1 The ability to ensure on a regular or continuous basis, the maintenance of bee sites or hive placements is demonstrated.
- 3.2 The ability to ensure regular and continuous evaluation of the quality and status of the bee site or placement is demonstrated.
- 3.3 The ability to evaluate on a regular basis the usefulness and economic viability of the bee site or placement is demonstrated.

4. Demonstrate an understanding and describe basic pollination biology with specific reference to nectar and pollen production in flowering commercial plants and the various pollinating agents.

Range: Pollination biology in plants includes but is not limited to pollination science of the flowers of commercial fruit, vegetable seed, vegetables and cucurbits and natural vegetation.

Pollinating agents include but are not limited to wind, water, insects, mammals, birds and gravity.

Assessment criteria:

- 4.1 An understanding of the anatomy of the flowers of plants requiring pollination is demonstrated.
- 4.2 The physiology of plant pollination with reference to the pollinating agents involved is illustrated and described.
- 4.3 The physiology of fertilisation and double fertilisation is illustrated and described.
- 4.4 The physiology of fruit set in all relevant plants is illustrated and described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 4.
2. **Teamwork:** relates to specific outcomes 2 and 3.
3. **Self Organisation and Management:** relates to specific outcomes 1 to 4.
4. **Communication:** relates to specific outcomes 1 to 3.
5. **Personal Development:** relates to specific outcomes 1 to 4.
6. **Interpretation of information:** relates to specific outcomes 1 and 4.
7. **The world as a set:** relates to specific outcomes 1 to 4.
8. **Science and technology:** relates to specific outcomes 1 and 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific nectar and pollen bearing plant species.
2. Plant botany and pollination science.
3. Sensory observation and evaluation of bee plant pollination.
4. Observation of bee visits to various plants over time.
5. Evaluation of the potential of bee plants areas for production.
6. The purpose of learning about plant pollination.
7. Basic agricultural infrastructure.
8. Public relations.
9. Basic record keeping.
10. Observation of sensory cues in plants and bees.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 3.6.3**ELECTIVE**

TITLE : COMMUNICATE AGR/ECOTOURISM PRINCIPLES AND CONCEPTS EFFECTIVELY AND ADAPT TO NEEDS

SAQA :

UNIT STANDARD LEVEL : 3

CREDIT : 5

FIELD : Agriculture And Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to demonstrate an ability to identify basic tourism principles and concepts (success factors) and communicate effectively to tourists and management

In addition learners will be well positioned to extend their learning and practice into other areas of agriculture, or to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural practices and aspects of tourism as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Participate in agri/eco tourism practices at both micro and macro levels to tourists.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and describe the contribution of amenities to the Agri/Ecotourism destination.
 2. Identify and describe the contribution of access structures to the Agri/Ecotourism destination.
 3. Identify and describe the contribution of auxiliary services to the Agri/Ecotourism destination.
 4. Identify and describe the contribution of attractions to the Agri/Ecotourism destination.
 5. Communicate the relationship between the components of a successful Agri/Ecotourism destination.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and describe the contribution of amenities to the Agri/Ecotourism destination.

Range: Infrastructure, water, sanitation, energy, services, laundry.

Assessment criteria:

- 1.1 The ability to identify the various amenities impacting both positively and negatively on the Agri/Ecotourism venture is demonstrated.
 - 1.2 An awareness and understanding of the contribution of various amenities impacting both positively and negatively on the Agri/Ecotourism venture is demonstrated.
 - 1.3 The ability to identify those amenities with identified corrective measures that need specific attention to enhance the agri-ecotourism venture as a successful destination is demonstrated.
-
2. Identify and describe the contribution of access structures to the Agri/Ecotourism destination.

Range: Roads, transport, telecommunication, information technology, media.

Assessment criteria:

- 2.1 The ability to identify the various access structures impacting both positively and negatively on the Agri/Ecotourism venture is demonstrated.

- 2.2 An awareness and understanding of the contribution of various access structures impacting both positively and negatively on the Agri/Ecotourism venture is demonstrated.
- 2.3 The ability to identify those access structures with identified corrective measures that need specific attention to enhance the agri-ecotourism venture as a successful destination is demonstrated.
3. Identify and describe the contribution of auxiliary services to the Agri/Ecotourism destination.

Range: Organizations, Tourism networks, tourism bureaus.

Assessment criteria:

- 3.1 The ability to identify the various auxiliary services impacting both positively and negatively on the Agri/Ecotourism venture is demonstrated.
- 3.2 An awareness and understanding of the contribution of various auxiliary services impacting both positively and negatively on the Agri/Ecotourism venture is demonstrated.
- 3.3 The ability to identify those auxiliary services with identified corrective measures that need specific attention to enhance the agri-ecotourism venture as a successful destination is demonstrated.
4. Identify and describe the contribution of attractions to the Agri/Ecotourism destination.

Range: Farm/reserve, natural, education, hospitality, farm stall, eco-adventures.

Assessment criteria:

- 4.1 The ability to identify the various attractions impacting both positively and negatively on the Agri/Ecotourism venture is demonstrated.
- 4.2 An awareness and understanding of the contribution of various attractions impacting both positively and negatively on the Agri/Ecotourism venture is demonstrated.
- 4.3 The ability to identify those attractions with identified corrective measures that need specific attention to enhance the agri-ecotourism venture as a successful destination is demonstrated.
5. Communicate the relationship between the components of a successful Agri/Ecotourism destination.

Range: Amenities, Access, Auxiliary services, Attractions.

Assessment criteria:

- 5.1 The ability to understand the relationships between the various components impacting on the agri/ecotourism venture as a destination is demonstrated.

- 5.2 An awareness of the importance of these relationships between the components to the success of the Agri/Ecotourism destination is demonstrated.
- 5.3 The ability to effectively communicate these relationships to the relevant authorities in order to apply corrective measures is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem-solving** relates to specific outcomes 1-5.
2. **Teamwork** relates to specific outcomes 1-5.
3. **Self-organization and management** relates to specific outcomes 1-5.
4. **Information evaluation** relates to specific outcomes 1-5.
5. **Communication** relates to specific outcomes 1-5.
6. **Use science and technology** relates to specific outcomes 1-5.
7. **Inter-relatedness of systems** relates to specific outcomes 1-5.
8. **Self-development** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Concepts relating to Agri/Ecotourism destinations: amenities, auxiliary services, access, and attractions.
2. Legislation governing operations on agri-site.
3. The relationship between concepts as success factors.
4. The ability to communicate effectively with authorities.
5. The ability to communicate effectively with management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.4**ELECTIVE**

TITLE	:	ORGANISE SHEARING SHED ACTIVITIES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard must be able to have basic fibre sorting knowledge and should be able to apply it to a plan and organise activities in order to ensure the smooth operation of the shearing shed.

The profession will in general benefit from this training by equipping the workforce with the skills to prepare the shearing shed for the shearing of the flock or herd.

Learners will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Prepare a Shearing Shed for Shearing.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Supervise cleaning of shearing shed.
 2. Plan the shearing shed layout.
 3. Supervise handling and sorting of fibres.
 4. Recommend procedures to deal with the different potential contaminant materials that can cause contamination problems in a shearing shed.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Plan and supervise the procedures prescribed for cleaning of the shearing shed.

Range: Wool, mohair, kashmir, and other animal fibres

Assessment criteria:

- 1.1 Shearing shed activities are planned and monitored (e.g. cleaning of shed, placement of equipment.)
- 1.2 Appropriate guidance to ensure effective cleaning of the shearing shed are provided.

2. Plan the shearing shed layout.

Range: Wool, mohair, kashmir, and other animal fibres as relevant to the context of operation.

Assessment criteria:

- 2.1 The shearing shed layout is planned and implemented.
- 2.2 The ability to evaluate the implementation plan is demonstrated.
- 2.3 Deficiencies on equipment are evaluated.
- 2.3 The ability to identify deficiencies and problems with the layout of the shed is demonstrated.
- 2.4 The ability to develop appropriate solutions to problems is demonstrated.

3. Supervise handling and sorting of fibres.

Range: Wool, mohair, kashmir, and other animal fibres as relevant to the context of operation.

Assessment criteria:

- 3.1 Discrepancies in the handling and sorting of fibres are identified.

- 3.2 The ability to develop a plan to deal with such discrepancies is demonstrated.
- 3.2 Guidance in the correction of discrepancies is evaluated and implemented in the shearing shed.
- 3.3 Training needs of the workforce involved in the shearing process are identified and reported.

- 4. Recommend procedures to deal with the different potential contaminant materials that can cause contamination problems in a shearing shed.
Range: Contaminated materials include but are not limited to plastic, synthetic fibres, stones, chemicals, etc.

Assessment criteria:

- 4.1 Foreign materials that can potentially contaminate fibre are identified.
- 4.2 An understanding of the effects of contamination on the quality of fibres during processing is demonstrated.
- 4.3 An understanding of procedures to be recognised and developed to overcome the problem of potential contaminants is demonstrated.
- 4.4 Pens and shearing are constantly inspected for contaminated materials and cleaned appropriately.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** relates to specific outcomes 1 to 4.
2. **Problem solving:** relates to specific outcomes 1 to 4.
3. **Self-management:** relates to specific outcomes 1 to 4.
4. **Interpreting information:** 1 to 4.
5. **Communication:** relates to specific outcomes 1 to 4.
6. **Use science and technology:** relates to specific outcomes 1 to 4.
7. **Self-development:** relates to specific outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Fibre handling and sorting during the shearing process.
2. Shearing shed operation and layout.
3. Numeracy and literacy.
4. Management and planning skills.
5. Purpose of training a supervisor to manage and solve problems in the shearing shed.

6. The correct procedures and guidelines are followed during the shearing process.
7. Relevant legislation is noted and complied with.
8. Procedures and guidelines determined by national standards.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.5**ELECTIVE**

TITLE	:	MAINTAIN AND SUPPORT SUSTAINABLE WILD FLOWER HARVESTING PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to maintain and support sustainable wild flower harvesting practises in an agricultural environment, report faults and where appropriate, supervise and effect routine repairs.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Apply suitable farming practices to conserve the ecological environment.
NQF 2: Harvest natural flora.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Supervise and manage a wild flower harvesting team.
2. Demonstrate an understanding and working knowledge of relevant legislation.

3. Recognise target and non-target species and minimize the impact on non-target species.
 4. Demonstrate the ability to pick according to a harvesting schedule and keep appropriate records.
 5. Implement appropriate harvesting techniques.
 6. Monitor and support good harvesting and habitat management.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Supervise and manage a local harvesting operation.

Range: Within but not limited to: e.g. a wild flower harvesting operation.

Assessment criteria:

- 1.1 The ability to apply supervisory methods and techniques in any given situation or range of situations is demonstrated.
- 1.2 The ability to manage a harvesting operation successfully is demonstrated.

2. Demonstrate an understanding and working knowledge of relevant legislation.

Range: The relevant legislation attaining to but not limited to: wild flower harvesting e.g. for harvesting wild flower species a permit is required.

Assessment criteria:

- 2.1 An understanding of the effect of non-compliance to legislation is demonstrated.
- 2.2 The ability to interpret permits is demonstrated.

3. Recognise target and non-target species and minimize the impact on non-target species.

Range: Target and non-target species within the local harvesting range.

Assessment criteria:

- 3.1 A basic understanding of local target and non-target species is demonstrated (e.g. rarity, principles of taxonomy, distinguishing characteristics between target and similar non-target species).
- 3.2 An understanding of potential impacts is demonstrated (e.g. but not limited to the spread of pathogens, trampling and accidental fire).
- 3.3 The ability to mitigate potential impacts is demonstrated.

4. Implement appropriate harvesting techniques.

Range: appropriate tools, local plant guilds and their specific harvesting techniques

Assessment criteria:

- 4.1 A basic understanding of the characteristics of plant guilds and species within guilds is demonstrated.
- 4.2 The ability to implement & supervise appropriate harvesting techniques per guild is demonstrated (including but not limited to appropriate tools, cutting techniques and environmental safety).
- 5. Demonstrate the ability to pick according to a harvesting schedule and keep appropriate records.

Range: Implement harvesting schedule within a flower harvesting operation.

Assessment criteria:

- 5.1 An understanding of the need to implement a harvesting schedule is demonstrated.
- 5.2 The ability to implement a harvesting schedule and record and report on the resource is demonstrated.
- 5.3 The ability to report is demonstrated.
- 6. Demonstrate a good knowledge of harvesting principles and an understanding of local habitat ecology and management.

Range: Relevant harvesting principle to the specific harvesting operation, habitat is defined as the local harvesting range of the harvesters, basic management principles (e.g. but not limited to fire, alien vegetation).

Assessment criteria:

- 6.1 Knowledge of harvesting techniques on different guilds of plants is demonstrated.
- 6.2 The ability to recognise different habitat adaptations and interactions (biotic and abiotic) is demonstrated (e.g. impacts of fire and aliens on plant regeneration and survival)
- 6.3 An understanding of management interventions is demonstrated (e.g. fire management and protection, alien organism control).

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-6.
2. **Self-organisation and management** relates to specific outcomes 1-6.
3. **Information evaluation** relates to specific outcomes 1-6.

4. **Communication** relates to specific outcomes 1-6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Supervisory and communication skills.
2. Basic species identification.
3. Basic ecological principles.
4. Basic management principles.
5. Basic first aid.
6. Basic fire fighting
7. Occupational Health & Safety.
8. Ecologically sustainable methods of harvesting.
9. Basic map reading.
10. Purpose and systems of reporting.
11. Basic conflict resolution and management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.6**ELECTIVE**

TITLE	:	INTRODUCTION TO ORGANIC CERTIFICATION AND INTERNAL CONTROL SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard should be able to demonstrate basic understanding of the organic inspection process.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Introduce organic certification and internal control systems.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Carry out basic organic farm inspection of a small farm unit.
2. Support the Farmers Association with the application of organic rules.
3. Identify the requirements of specific certification bodies in terms of Internal Control Systems.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Carry out basic organic farm inspection of a small farm unit.

Range: Knowledge of national and international organic regulations and of inspection procedures (farm inspection, fraud detection, internal control systems, auditing of production [integrity of organic chain, traceability of produce, labelling, input supply checking methods, and transport], inspection report writing, drawing of farm sketch maps, communication skills).

Assessment Criteria:

- 1.1 The contents of the current version of the international Organic Inspectors Manual as approved by the International Federation of Organic Agricultural Movements (IFOAM) is described.
- 1.2 Practical farm inspection procedures are explained.
- 1.3 Organic inspection report writing is demonstrated.

- 2 Support the Farmers Association with the application of organic rules.

Assessment Criteria:

- 2.1 An understanding of the content of appropriate Farmers Association constitutions is demonstrated.
- 2.2 The requirements of Internal Control Systems are described.
- 2.3 The ability to apply disciplinary measures and sanctions to ensure compliance of farmers with the rules of the Farmers Association is demonstrated.

- 3 Identify the requirements of specific certification bodies in terms of Internal Control Systems.

Assessment Criteria:

- 3.1 The approach to Internal Control Systems of at least two certification bodies is described.
- 3.2 The ability to compare South African and international requirements for Internal Control Systems is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** relates to specific outcomes 1 to 3.

2. **Teamwork:** relates to specific outcomes 1 to 3.
3. **Self-management:** relates to specific outcomes 1 to 3.
4. **Information evaluation:** relates to specific outcomes 1 to 3.
5. **Communication:** relates to specific outcomes 1 to 3.
6. **Use science and technology:** relates to specific outcome 1
7. **Self-development:** relates to specific outcomes 1 to 3.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Understanding organic farming systems.
2. Legal implications of fraudulent claims about products.
3. Communicate with farmers in a professional way.
4. Ability to write clear reports.
5. Evaluation information.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.7**ELECTIVE**

TITLE	:	IDENTIFY AND APPLY PERMACULTURE PRINCIPLES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to identify and apply permaculture principles and use ecological processes and cycles in Permaculture applications.

Learners will gain specific knowledge and skills in permaculture and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Interpret and illustrate permaculture principles.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify Permaculture site elements and resources and integrate these with each other.
 2. Recognise and use local biotic and abiotic resources in a Permaculture context.
 3. Use ecological processes and cycles in Permaculture applications.
 4. Select appropriate sustainable living practices that reflect Permaculture ethics.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify Permaculture site elements and resources and integrate these with each other.

Range: Site resources include, but are not limited to, soil, water, plants, animals, air (wind), and energy (including human energy).

Site elements refer, but are not limited to, the components of a design, such as nurseries, water harvesting, orchards, aquaculture and other production areas. The site elements will differ from one context to another.

Productivity refers to the balance between inputs and outputs, i.e. the total yield of the site is considered in a holistic sense, rather than individual elements in isolation.

Assessment criteria:

1.1 The utilisation of slopes in a water-harvesting system is demonstrated.

(Range: Water-harvesting may include any of the following, but is not restricted to: the correct placement and building of swales, bunds, water tanks or pits, dams, bunds and contours).

1.2 The ability to place site elements correctly in relation to other elements is demonstrated.

(Range: The placement of site elements refers to the tangible links made between different parts of the design, such as chickens are placed near the orchard to facilitate fowls foraging in it in a controlled way so that the chickens a) eat pests, and b) manure the soil. Thus the needs of the chicken (food and foraging) are met, and the needs of the orchard (pest control and soil nutrients) are met concurrently. The site elements will vary from one site to another, depending on the purpose and primary functions of that particular enterprise).

- 1.3 The reason for placing extensive production areas that are visited or frequented the least often is explained.
- 1.4 The purpose and structure of firebreaks is explained.

- 1.5 The structure and placement of windbreaks is explained.
 - 1.6 Techniques to secure the boundary of the enterprise site in terms of intruders are explained.
 - 1.7 The purpose of promoting biodiversity is explained.
2. Recognise and use local biotic and abiotic resources in a Permaculture context.

Range: Biotic resources refer to all living organisms. Abiotic resources refer to all aspects of the non-living environment and include, but are not limited to air, wind, sun, water, soil, and climate.

Assessment criteria:

- 2.1 Ways to source inputs are sourced on-site, or locally, are explained using existing examples.
 - 2.2 Household, plant and animal wastes are recycled using living organisms, either through compost, mulch, worm farms or other appropriate means.
 - 2.3 Local resources are used as building materials where appropriate.
 - 2.4 Where appropriate, site energy needs are met through the harvesting of sunlight, wind, biogas and/or a woodlot.
3. Use ecological processes and cycles in Permaculture applications.

Range: Ecological processes refer to energy flow and food webs, succession, and edge effects. Cycles refer to the mineral and water cycles.

Assessment criteria:

- 3.1 The recycling of plant and animal nutrients is applied in a 'closed system'.
(Range: A 'closed system' refers to the sourcing and using of nutrients on the site. For example, comfrey is harvested, used to make compost, and placed in the soil to provide plant nutrients again, or chickens are used in a tractor system, or clippings from vegetables harvested in the food garden are fed to worms and the worm castings are placed in the soil)
- 3.2 A predator refuge is established.
- 3.3 Combinations of plants to promote pest control are planted.
- 3.3 Rain water is harvested and utilised.
- 3.4 Soil is enriched using plant and animal sources.
(Range: Soil enrichment can be done using sheet mulching, double digging, trench beds or similar means).
- 3.5 Trees are planted to accelerate succession.
- 3.6 The edges, or boundaries between parts of the design, contain a variety of plants.
- 3.7 All soil in intensive production areas is mulched.
- 3.8 All trees are spot-mulched.
- 3.9 A wilderness area has been demarcated.

4. Select appropriate sustainable living practices that reflect Permaculture ethics.

Range: Sustainable living practices refer to the integration of social, economic, political and abstract components:

Social Components can include but are not limited to: Innovative settlement patterns such as eco-villages; the use of appropriate technology (e.g. solar energy, biogas digesters, flow forms for water purification, ram pumps, and wind energy); the dissemination of knowledge, skills and information.

Economic components include, but are not limited to: Local Employment Trading Systems; the establishment of cooperative community markets; community-supported agriculture systems.

Political components include, but are not limited to: The development of cluster groups as forums for discussion, representation and innovation; the development of

Assessment criteria:

- 4.1 A range of sustainable living practices are identified and explained.
- 4.2 The benefits of alternative economic structures to the local economy are explained.
- 4.3 Non-toxic and environmentally friendly inputs are identified (e.g. paints, chemicals, and cleaning agents).
- 4.4 A grey-water harvesting system is established.
(Range: Grey water refers to any water that has been used for washing or cleaning (and if harvested, it should contain no toxic chemicals). Grey water harvesting can be applied directly onto fruit-bearing plants, such as fruit trees, or onto other plants if it has gone through a series of flow forms or a similar purification process).
- 4.5 Methods of harvesting black water are identified and explained.
(Range: Black water refers to human effluent or sewage).
- 4.6 The financial requirements of establishing a permaculture site design are calculated and its financial viability assessed.
- 4.7 The needs and outputs of the surrounding community are identified and incorporated into the design plan.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 3 and 4.
2. **Teamwork:** relates to specific outcomes 1, 2 and 4.
3. **Self-management:** relates to specific outcomes 1 – 4.
4. **Interpreting Information:** relates to specific outcomes 1, 2 and 4.
5. **Communication:** relates to specific outcomes 2, 3 and 4.

6. **Use Science and Technology:** relates to specific outcomes 1 – 4.
7. **The world as a set of related systems:** relates to specific outcomes 1 – 4.
8. **Self-development:** relates to specific outcomes 1 and 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 The properties of fire-retardant and/or fireproof plant species, structures and techniques.
- 2 The properties of wind movement in relation to slope and structures.
- 3 The names and characteristics of wind resistant plant species appropriate for the South African context.
- 4 The relationship between wind movement and the placement of structures.
- 5 Permaculture ethics.
- 6 Data gathering.
- 7 Creating a budget.

SUPPLEMENTARY INFORMATION

Permaculture – A Designer’s Manual, Tagari Publications, and Introduction to Permaculture, Tagari Publications, are used as the foundational texts for Permaculture Design.

NOTES

END

LEVEL 3.6.8**ELECTIVE**

TITLE	:	APPLY PIG HUSBANDRY PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to carry out applied pig husbandry practices in the field of malnutrition, farrowing practices, applied basic artificial insemination and applied mating practices. In addition they will be well positioned to extend their learning and practice into areas of agriculture and specifically pig production. The profession will benefit from this training by having a skilled workforce that will contribute towards the performance and productivity of a pig enterprise.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF2: Identify basic breeding practices of farm animals.

NQF 2: Observe and inspect animal health.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Distinguish and treat malnutrition, anorexia in pigs and vaccinate pigs against diseases.
2. Describe and demonstrate post-farrowing husbandry practices in piglets.

3. Identify problems at farrowing and provide assistance where necessary.
 4. Identify the need for cross fostering and implement where necessary.
 5. Apply basic artificial insemination practices to pigs.
 6. Recognise and ensure normal mating behaviour in breeding pigs.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Distinguish and treat malnutrition, anorexia in pigs and vaccinate pigs against diseases.

Assessment criteria:

- 1.1 The occurrence of malnutrition in pigs and administer appropriate treatment practices is identified.
 - 1.2 The occurrence of anorexia in pigs must be recognised and the appropriate remedies or treatments is identified and administered.
 - 1.3 Appropriate vaccinations required in pig production are identified and administered appropriately.
2. Describe and demonstrate post-farrowing husbandry practices in piglets

Assessment criteria:

- 2.1 Tail docking of piglets is illustrated according to the appropriate procedures.
 - 2.2 The practice of teeth clipping in piglets is demonstrated according to the appropriate procedure.
 - 2.3 The appropriate castration practices in piglets are demonstrated under supervision.
 - 2.4 An iron injection to piglets is applied at the appropriate time post-farrowing.
3. Identify problems at farrowing and provide assistance where necessary.

Assessment criteria:

- 3.1 Farrowing problems in sows are identified the appropriate procedures are applied to assist the sows.
- 3.2 The ability to report problems identified that cannot be solved in the farrowing house to the supervisor is demonstrated.
- 3.3 The level of assistance in the farrowing house as decided by the supervisor is performed.
- 3.4 A strategy to observe the sow and piglets during the rest of the farrowing period is explained.

4. Identify the need for cross fostering and implement where necessary.

Assessment criteria:

- 4.1 The number of piglets in the litter to the number of functional teats on the sow is compared.

- 4.2 The need for fostering of the piglets is evaluated and determined.
- 4.3 Possible sows for use as foster mothers are identified and evaluated.
- 4.4 Cross fostering to the relevant litters is applied.
- 4.5 The ability to observe acceptance of fostered piglets by the sow is demonstrated.

5. Apply basic artificial insemination practices to pigs.

Assessment criteria:

- 5.1 The collection, distension and handling of semen from pigs must be demonstrated.
- 5.2 The ability to induce oestrus cycles and synchronise sows is explained.
- 5.3 Prescribed artificial insemination procedures are performed correctly.

6. Recognise and ensure normal mating behaviour in breeding pigs.

Assessment criteria:

- 6.1 The parading of the boar around the sows to stimulate oestrus is demonstrated.
- 6.2 The boar's ability to identify standing oestrus in sows is depicted.
- 6.3 The mating process are carried out.
- 6.4 Reasons for moving of the sow to the boar at the correct time are explained.
- 6.5 The mating process must be observed and the need for repeated mating is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should

not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-6.
2. **Teamwork:** relates to specific outcomes 1-6.
3. **Self-management:** relates to specific outcomes 1-6.
4. **Interpreting Information:** relates to specific outcomes 1-6.
5. **Communication:** relates to specific outcomes 1-6.
6. **Self-development:** relates to specific outcomes 1-6.
7. **Science and Technology:** relates to specific outcome 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Treating pigs for malnutrition and anorexia.
2. Vaccination of all pigs according to a programme.

3. Tail docking, tooth clipping, castration and iron injection is carried out in piglets post-farrowing.
4. An understanding and implementing cross fostering in sows and piglets.
5. Apply basic artificial insemination practices to pigs according to artificial insemination procedures.
6. Mating procedures must be understood and applied to the sows and boars.
7. The farrowing process, identify problems and decide on the assistance to be provided.
8. Purpose of this training is to develop and skill a farrowing house attendant.
9. Necessary legislation and procedures must be followed when carrying out these practices.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.9**ELECTIVE**

TITLE	:	APPLY BASIC ARTIFICIAL INSEMINATION PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to perform artificial insemination practices successfully on the farm.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 1: Recognise basic breeding behaviour of farm animals.

NQF 2: Identify basic breeding practices of farm animals.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Apply basic artificial insemination practices to animals.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Apply basic artificial insemination practices to animals.

Range: Animals include but are not limited to small stock, large stock, poultry, fish, game, pigs, insects, etc.

Assessment criteria:

- 1.1 The ability to use the different instruments and equipment for artificial insemination is demonstrated.
- 1.2 The ability to identify animals receptive for artificial insemination is demonstrated.
- 1.3 The ability to prepare relevant animals for artificial insemination procedures according to prescribed guidelines is demonstrated.
(Range: Males, females, hermaphrodites, etc).
- 1.4 The ability to collect semen and store semen according to prescribed guidelines is demonstrated.
- 1.5 The application of correct procedures to administer semen to receptive recipient animals is demonstrated.
- 1.6 The ability to do post artificial insemination procedure practices (e.g. follow-up) is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Observation Skills:** relates to specific outcome 1.
2. **Science and Technology:** relates to specific outcome 1.
3. **Interpreting Skills:** relates to specific outcome 1.
4. Self-development: relates to specific outcome 1.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Animal physiology and anatomy.
2. Breeding principles.
3. Breeding practices.
4. Hygiene.
5. Record keeping.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.10**ELECTIVE**

TITLE	:	APPLY BLADE-SHEARING SKILLS AND PREPARE BLADE-SHEARING EQUIPMENT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to prepare blade-shearing equipment to maximise comfort, safety and productivity. Furthermore, the person will be able to shear an animal in such a way that it maximises the quality and quantity of the produce.

CONTEXT OF APPLICATION

The person will be able to apply this skill in ONE of the following contexts:

- Merino.
- Cross breeds.
- White wools.
- Caracul.
- Mohair.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed to be in place.

SPECIFIC OUTCOMES

1. Set up and maintain hand-shears and grinding equipment.
2. Apply general safety measures and deal with emergencies in the shearing shed.
3. Prepare the shearing area.
4. Catch, handle and hold sheep for shearing purposes.

5. Shear sheep by applying correct blade-shearing techniques.
 6. Apply basic health and fitness measures/principles.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Set up and maintain hand-shears and stoning equipment.

Assessment criteria:

- 1.1 The hand-shears are prepared and maintained in order to function efficiently and effectively with maximum comfort to the shearer and safety to the animal. (Range: Preparation includes but is not limited to blades, cutting edge, grip and tips).
- 1.2 Equipment is stored safely. (Range: Safe storage includes but is not limited to cleanliness, safety, protection and excluding moisture).
- 1.3 Stoning equipment is prepared in order to function efficiently and effectively. (Range: Preparation includes but is not limited to cleaning and dressing of stoning surfaces, lubrication, and storage).

2. Apply general safety measures and deal with emergencies in the shearing shed.

Assessment criteria:

- 2.1 Correct gripping and carrying techniques are applied. (Range: Gripping and carrying techniques as applicable to blade-shears and stoning equipment).
- 2.2 Protective clothing is used. (Range: Protective clothing includes but is not limited to glasses).
- 2.3 Conditions of shearing shed). (Range: Conditions includes but is not limited to ventilation, shearing space and power cables.)
- 2.4 Emergencies are responded to immediately and appropriately. (Range: Emergencies include but are not limited to human, animal and equipment).

3. Prepare the shearing area.

Assessment criteria:

- 3.1 Shearing area is cleaned and shearing equipment is appropriately placed.
- 3.2 Good hygiene is taken into consideration to prevent contamination and infections.

4. Catch, handle and hold sheep for searing purposes.

Assessment criteria:

- 4.1 Correct handling and moving of animal techniques are applied.

- 4.2 The animal is correctly positioned to ensure maximum comfort to animal and shearer, and safe shearing.
- 4.3 Handling and holding techniques are adapted for lambs, pregnant ewes and rams.
5. Shear sheep by applying correct blade-shearing techniques.

Assessment criteria:

- 5.1 The correct process is applied.
 - 5.2 The correct techniques are applied.
(Range: Correct techniques refer to but are not limited to the use of top/bottom blade).
 - 5.3 Animal is shorn according to the correct pattern.
 - 5.4 Skin is kept tight to avoid cuts (skin).
 - 5.5 Second cuts (wool) are avoided.
-
6. Apply basic health and fitness measures/principles.

Assessment criteria:

- 6.1 Correct posture is applied.
- 6.2 Physical preparation of shearer (exercising and warming up stretching).
- 6.3 Fluid intake.
- 6.4 Warm clothing when resting.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-6.
2. **Teamwork** relates to specific outcomes 1-6.
3. **Self-organisation and management** relates to specific outcomes 1-6.
4. **Information evaluation** relates to specific outcomes 1, 5.
5. **Communication** relates to specific outcomes 1-6.
6. **Inter-relatedness of systems** relates to specific outcomes 3-6.

ESSENTIAL EMBEDDED KNOWLEDGE

The qualifying learner is able to demonstrate a basic knowledge and understanding of:

1. Condition of animals.
2. Properties of wool.
3. Density of wool.
4. Tools and equipment.

5. Layout and conditions of the shearing shed.
6. Adaptability to conditions.
7. Shearing process.
8. Shearing pattern.
9. Basic anatomy (Large arteries and nerves, muscles, etc.)
10. Health and safety requirements (animal, human and environment).
11. OHS act.
12. Potential hazards.
13. Condition of equipment in relation to competitiveness.
14. Stoning equipment.
15. Hygiene and contamination.
- 16.
17. Skills: Interpersonal.
 Communication.
18. Techniques: Stoning.
 Shearing.
 Preparing the blade-shears.
 Posture.
 Holding the animal.
 Catching the animal.
 Positioning the animal.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 3.6.11**ELECTIVE**

TITLE	:	APPLY MACHINE-SHEARING SKILLS AND PREPARE SHEARING EQUIPMENT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	3
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to prepare machine-shearing equipment to maximise comfort, safety and productivity. Furthermore, the person will be able to shear an animal in such a way that it maximises the quality and quantity of the produce.

CONTEXT OF APPLICATION

The person will be able to apply this skill in ONE of the following contexts:

- Merino.
- Cross breeds.
- White wools.
- Caracul.
- Mohair.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed to be in place.

SPECIFIC OUTCOMES

1. Erect and set up a shearing machine.
2. Set and maintain a hand piece.
3. Set up and maintain a grinder.
4. Apply general safety measures and deal with emergencies in the shearing shed.

5. Prepare the shearing area.
 6. Catch, handle and hold sheep for shearing purposes.
 7. Shear sheep by applying correct machine-shearing techniques.
 8. Apply basic health and fitness measures/principles.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Erect and set up a shearing machine.

Assessment criteria:

- 1.1 The clutch and down tube is set according to specifications and safety precautions.
- 1.2 The height of the machine is set appropriately.
- 1.3 Maintenance and lubrication tasks are performed.

2. Set and maintain a hand piece.

Assessment criteria:

- 2.1 The hand piece is lubricated.
- 2.2 Combs and cutters are well ground and the edges are sharpened.
- 2.3 The combs and cutters are selected and loaded correctly and according to safety precautions.
(Range: Combs and cutters are selected according to the length, condition and density of wool).
- 2.4 The lead, tension and throw is tested and adjusted if necessary.
- 2.5 The hand piece is tested and adjusted if necessary.
(Range: The hand piece is set and maintained in order to function efficiently and effectively with maximum comfort to the shearer and safety to the animal).

3. Set up and maintain a grinder.

Assessment criteria:

- 3.1 Safety aspects are adhered to.
(Range: Safety aspects include but are not limited to temperature, glasses.
- 3.2 Equipment is stored safely).
(Range: Safe storage includes but is not limited to cleanliness, safety, protection and excluding moisture).
- 3.3 Grinding equipment is prepared in order to function efficiently and effectively.
(Range: Preparation includes but is not limited to cleaning and dressing of grinding surfaces, lubrication and storage).
- 3.4 The settings of the grinder are according to specifications.

4. Apply general safety measures and deal with emergencies in the shearing shed.

Assessment criteria:

- 4.1 Correct gripping and carrying techniques are applied.
(Range: Gripping and carrying techniques as applicable to shears and grinding equipment).
- 4.2 Protective clothing is used.
(Range: Protective clothing includes but is not limited to glasses.
- 4.3 Conditions of shearing shed).
(Range: Conditions includes but is not limited to ventilation, shearing space and power cables).
- 4.4 Emergencies are responded to immediately and appropriately.
(Range: Emergencies include but are not limited to human, animal and equipment).

5. Prepare the shearing area.

Assessment criteria:

- 5.1 Shearing area is cleaned and shearing equipment is appropriately placed.
- 5.2 Good hygiene is taken into consideration to prevent contamination and infections.

6. Catch, handle and hold sheep for shearing purposes.

Assessment criteria:

- 6.1 Correct handling and moving of animal techniques are applied.
- 6.2 The animal is correctly positioned to ensure maximum comfort to animal and shearer, and safe shearing.
- 6.3 Handling and holding techniques are adapted for lambs, pregnant ewes and rams.

7. Shear sheep by applying correct machine-shearing techniques.

Assessment criteria:

- 7.1 The correct process is applied.
- 7.2 The correct techniques are applied.
- 7.3 Animal is shorn according to the correct pattern.
- 7.4 Skin is kept tight to avoid cuts (skin).
- 7.5 Second cuts (wool) are avoided.

8. Apply basic health and fitness measures/principles.

Assessment criteria:

- 8.1 Correct posture is applied.
- 8.2 Physical preparation of shearer (exercising and warming up stretching).
- 8.3 Fluid intake.
- 8.4 Warm clothing when resting.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-8.
2. **Teamwork** relates to specific outcomes 1-8.
3. **Self-organisation and management** relates to specific outcomes 1-8.
4. **Information evaluation** relates to specific outcomes 1-3 and 7.
5. **Communication** relates to specific outcomes 1-8.
6. **Inter-relatedness of systems** relates to specific outcomes 3-8.

ESSENTIAL EMBEDDED KNOWLEDGE

The qualifying learner is able to demonstrate a basic knowledge and understanding of:

1. Condition of animals.
2. Properties of wool.
3. Density of wool.
4. Tools and equipment.
5. Layout and conditions of the shearing shed.
6. Adaptability to conditions.
7. Shearing process.
8. Shearing pattern.
9. Basic anatomy (Large arteries and nerves, muscles, etc.)
10. Health and safety requirements (animal, human and environment).
11. OHS act.
12. Potential hazards.
13. Condition of equipment in relation to competitiveness.
14. Grinding equipment.
15. Hygiene and contamination.

16. Skills: Interpersonal.
Communication.

17. Techniques: Grinding.
Shearing.
Preparing the combs and cutters.
Posture.
Holding the animal.
Catching the animal.
Positioning the animal.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.1.1**FUNDAMENTAL**

TITLE	:	IMPLEMENT A DATA COLLECTION PLAN
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to implement a data collection plan in the agricultural sector. S/he will be able to effectively analyse, interpret and evaluate agricultural data and be able to communicate findings accurately. In addition to this, the learner will be able to recognise, interpret and report on a range of deviations in data collection processes.

Learners will be well positioned to extend their learning and practice into other areas of information management and dissemination in the agricultural sector. Competent learners will understand the value of accurate data collection to the agricultural sector and be able to implement best practices in the area of information gathering.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to information systems and technology.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-oriented approach to agriculture.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standard

NQF 3: Supervise the Collection of Agricultural Data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Interpret a data collection plan.
 2. Implement a data collection plan.
 3. Interpret and analyse collected data.
 4. Present collated data coherently.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Interpret a data collection plan.

Assessment criteria:

- 1.1 The range of data outlined in the data collection plan is explained.
- 1.2 A schedule for data collection is created.
- 1.3 The appropriate methods for collection are identified.
- 1.4 Data scheduling takes the scheduled activities of the enterprise into account.
- 1.5 Possible dates that clash with other scheduled events are identified and alternative plans made.

2. Implement a data collection plan.

Assessment criteria:

- 2.1 Data collection is done at the scheduled times.
- 2.2 Data is collated promptly according to the data collection plan.
- 2.4 Gaps and/or irregularities in data collection methods are identified and reported.

3. Interpret and analyse collected data.

Range: All relevant data related to agriculture and agricultural experiments and/or research

Assessment criteria:

- 3.1 Methods of analysing and interpreting data are explained.
- 3.2 Data is analysed and interpreted.
- 3.3 Data is checked for accuracy and problems rectified.

4. Present collated data coherently.

Assessment criteria:

- 4.1 Various methods of data presentation are explained.
- 4.2 The most appropriate methods of data presentation are selected.
- 4.3 Data is presented accurately.

4.4 The findings of the report are clearly stated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not, unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 - 4.
2. **Teamwork** relates to specific outcomes 1 - 4.
3. **Self-organisation and management** relates to specific outcomes 1 - 4.
4. **Information evaluation** relates to specific outcomes 1 - 4.
5. **Communication** relates to specific outcomes 1 - 4.
6. **Use science and technology** relates to specific outcomes 1 - 4.
7. **Inter-relatedness of systems** relates to specific outcomes 1 - 4.
8. **Self-development** relates to specific outcomes 1 - 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate an advanced knowledge of:

1. Different methods of data collection.
2. Selection and application of data collecting methods.
3. Analysing and evaluating of collected data for problem identification and decision-making.
4. Methods of analysing and interpreting data.
5. Report writing.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.1.2**FUNDAMENTAL**

TITLE	:	PLAN AND MAINTAIN ENVIRONMENTALLY SOUND AGRICULTURAL PROCESSES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner will be able to identify knowledge processes and patterns of the environment in the region, and will understand the limitations of resources and how their management contributes to sustainable interactive agriculture, using environmental indicators.

Competent learners will be conversant with main agricultural regulations and aspects of safety, providing the environment for the application of quality practices.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standard:

“Incorporate basic concepts of sustainable farming systems into practical farming activities”, (NQF 3) or equivalent.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Plan and maintain sustainable agricultural processes and/or practices taking into account the four components of the environment.
2. Demonstrate broad knowledge of the processes of the environment.
3. Apply practical and efficient natural resource use in an agricultural context.

4. Understand sustainable agriculture.
 5. Identify and use environmental indicators.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Plan and maintain sustainable agricultural processes and/or practices taking into account the four components of the environment.

Range: Components include social, political, biophysical and economic.

Assessment criteria:

- 1.1 Plans to protect the various vegetation types and local animals are implemented.
- 1.2 Patterns of the environment are observed and described.
- 1.3 Veld types and their sensitivities are identified and explained.
- 1.4 An understanding of weather patterns is demonstrated.
- 1.5 Critical species of fauna and flora are identified.

- 2 Demonstrate broad knowledge of the processes of the environment.

Range: Relates to soil, climate, water and natural resources (fauna and flora)

Assessment criteria:

- 2.1 Wild life corridors are identified and developed.
- 2.2 An understanding of the interactions between eco-systems and agriculture is demonstrated.
- 2.3 An awareness of the main legal regulations governing agriculture and the environment is demonstrated.

3. Apply practical and efficient natural resource use in an agricultural context.

Range: Relates to soil, climate, water and natural resources (fauna and flora).

Assessment criteria:

- 3.1 An understanding of natural resources and their uses is demonstrated.
- 3.2 Poorly used resources (e.g. waste) are identified.
- 3.3 Conventional energy resources are identified.
- 3.4 Limitations to resources are explained.
- 3.5 Possible alternative energy resources are identified and explained.

4. Understand sustainable agriculture.

Assessment criteria:

- 1.1 Soil fertility is assessed and problems are remedied by addressing the long-term soil fertility constraints.

- 1.2 Biological pest control and integrated pest management systems are investigated.
 - 4.3 The different pollination processes are investigated and supported.
 - 4.4 Applications of natural fertilisers are developed and applied.
 - 4.5 Water conservation methods are investigated and implemented.
 - 4.6 Soil conservation methods are investigated and implemented.
 - 4.7 Crop rotation and inter-cropping are investigated and implemented.
 - 4.8 Rotational veld and pasture management are investigated and implemented.
5. Identify and use environmental indicators.

Range: Relates to soil, climate, water and natural resources (fauna and flora).

Assessment criteria:

- 5.1 The signs of land degradation is recognised and remedied.
- 5.2 Soil erosion control is observed, interpreted and explained.
- 5.3 Invasion is identified and a control strategy for invasive species is developed.
- 5.4 Indicator veld species in relation to natural succession is identified.
- 5.5 Basic cover is measured and assessed.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

- 1 **Problem solving** relates to specific outcomes 1 to 5.
- 2 **Self-organisation and management** relates to specific outcomes 1 to 5.
- 3 **Information evaluation** relates to specific outcomes 1 to 5.
- 4 **Communication** relates to specific outcomes 1 to 5.
- 5 **Use science and technology** relates to specific outcomes 1 to 5.
- 6 **Inter-relatedness of systems** relates to specific outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Communicate with farmers, service providers, researchers, NGO's, clients and market agents.
- 2 Compile simple reports and write basic business letters.
- 3 Identify and recognise the ecological, social and economic environment – locally, regionally and internationally (local ecological drivers such as H-cycle, C-cycle, etc., soil diversity, weather and climate patterns, biodiversity, etc).
- 4 Economically the income sources and cost factors should be recognised – local market sources should receive specific attention. The above should be

applied to the regional and international environment with specific attention to business and organisations operating and impacting locally.

- 5 Systems approach to life – definitions of systems like ecosystems, the importance of agriculture as an “open system”, the dynamics of role players within these systems.
- 6 The interrelationships between the various regional and international systems.
- 7 The concept sustainability and its applicability to agriculture and conservation.
- 8 Recognise the importance of the relatedness between social, ecological and economic environment as well as the identification of risk factors at all levels.
- 9 Knowledge should be demonstrated on the holistic nature of the whole farming system. All income sources, cost-factors, human influences and actors should be recognised.
- 10 The legal environment as well as the economic and biological environment should be recognised in order to be aware of present and potential risks.
- 11
- 12 A system approach should be used to plan and monitor productivity form level through the acknowledgement of the interrelatedness of ecosystems and its biological actors with the economic and social environments. This knowledge should be recognised within business plans enabling the learner to understand the rationale of a business plan.
- 13 Awareness and understanding of how to measure the productivity of farming systems. This includes the identification of indicators (social, economic, ecological) in order to plan better. A simple managerial information system should be available in order to make rational decisions at local level.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.2.1**AGRI-BUSINESS**

TITLE : EVALUATE, ADJUST AND IMPLEMENT FACTORS INFLUENCING AGRICULTURAL ENTERPRISES

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 4

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

Learners are capable of evaluating and adjusting the enterprise and production processes of animal and crop enterprises. In addition they will be well positioned to extend their learning and practice into other areas of agriculture, specifically crop production and animal production systems. This training will benefit the profession by equipping learners with adequate skills to improve productivity and performance.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to enterprise planning.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 3: Interpret factors influencing agricultural enterprises, and plan accordingly

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Evaluate and adjust production processes so that natural resources required are managed sustainably.
 2. Compare and evaluate infrastructural factors affecting requirements.
 3. Evaluate and adjust stock required.
 5. Evaluate and adjust harvest procedures required.
 6. Compare and integrate the post harvest factors.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Evaluate and adjust production processes so that natural resources required are managed sustainably.

Range: Natural resources include soil, water, climate, vegetation and topography.

Assessment criteria:

- 1.1 Recommendations of soil and water sample analysis are evaluated and the relevant enterprises are adjusted.
 - 1.2 Processes are adjusted to take account of weather forecasts.
 - 1.3 The production cycle processes are appraised, adjusted and incorporated into the relevant enterprises.
 - 1.4 Production processes according to observation and reports are evaluated and adjusted.
 - 1.5 Production records are appraised and the outcomes are incorporated into the production processes.
 - 1.6 Production is adjusted according to the evaluation of market information.
2. Compare and evaluate infrastructural factors affecting requirements.

Range: Infrastructural requirements include fencing, housing, water supply, electricity, handling facilities, access and other.

Assessment criteria:

- 2.1 Factors affecting the role and function of infrastructure for the relevant enterprises are evaluated and adjusted.
 - 2.2 Required adjustments to the infrastructure are integrated and implemented.
 - 2.3 According to relevant regulations and legislation the enterprise is evaluated, and adjustments made and implemented where appropriate.
3. Evaluate and adjust required stock.

Range: All livestock and crops required for the relevant enterprise.

Assessment criteria:

- 3.1 Deficiencies in production regarding stock are evaluated and adjusted to ensure optimum production.
- 3.2 The characteristics and needs of livestock and crops are evaluated and adjustments to the enterprise are made accordingly.
- 3.4 The suitability of resources for specific enterprises are evaluated and adjusted, and appropriate changes implemented.
4. Evaluate and adjust harvest procedures required.

Range: All livestock and crops required for the relevant enterprise.

Assessment criteria:

- 4.1 The criteria for successful harvesting are evaluated, adjusted and implemented into the enterprise.
- 4.2 Harvest practices are evaluated and adjustments are implemented.
- 4.3 Good health and hygiene principles are evaluated and harvesting procedures are adjusted.
- 4.4 Health and hygiene regulations and legislation are evaluated and adjustments where required are included.
- 4.5 Products are evaluated and adjusted accordingly to quality standards.
5. Compare and integrate the post harvest factors.

Range: All livestock and crops required for the relevant enterprise.

Assessment criteria:

- 5.1 The procedures for successful post harvesting practices are compared and integrated into the relevant enterprise.
- 5.2 Post harvest practices are evaluated and adjusted where necessary.
- 5.3 Good health and hygiene principles are assessed and adjustments are made where necessary.
- 5.4 Health and hygiene regulations and legislation are reviewed and changes are integrated into the procedures.
- 5.5 Products are evaluated and quality standards are adjusted accordingly.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 6.
2. **Teamwork:** relates to specific outcomes 1 to 6.

2. **Self organisation and management:** relates to specific outcomes 1 to 6.
4. **Information evaluation:** relates to specific outcomes 1 to 6.
5. **Communication:** relates to specific outcomes 1 to 6.
6. **Science and Technology:** relates to specific outcomes 1 to 6.
7. **World as a set of related systems:** relates to specific outcomes 1 to 6.
8. **Self-development:** relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Role and function of soil and water samples, weather information, vegetation, infrastructure, breed characteristics, production cycles, records, markets, health and hygiene within production processes.
2. Description, characteristics and properties of vegetation, infrastructure, weather, production cycles, markets within production processes.
3. Observation of the effects of weather patterns, soil and water characteristics, market trends, breed and stock characteristics / performance, health and hygiene conditions, infrastructure conditions, vegetation quality and quantity influencing production processes.
4. Purpose of vegetation, infrastructure, weather, production cycles, markets within production processes.
5. Implications of ineffective practices on production processes.
6. Knowledge of specific livestock and crop characteristics so as to compare and evaluate within production processes and environmental conditions.
7. Regulations and legislation related to production processes.
8. Describe various production procedures as an integral part of the production process.
9. Communication and reporting skills.
10. Understand the procedures and principles that are followed to determine the viability of an enterprise.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.2.2**AGRI-BUSINESS**

TITLE	:	PREPARE A WHOLE FARM BUDGET AND ESTABLISH A PROPER INTEGRATED INFORMATION SYSTEM FOR AN AGRI-BUSINESS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture: Farming
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to accept full responsibility for the development of an integrated whole farm budget as well as the implementation of an advanced information system for a commercially driven agri-business.

In addition the learner will be well positioned to extend their learning and practice in to other areas of strategic management and systems thinking. The profession will in general benefit from this holistic approach to systems thinking and application.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to financial support.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Explain costing and the viability of an agri-business.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Prepare an integrated whole farm budget.
 - 2 Utilise sensitive analysis (what-if functions) to determine the economic and financial viability of a business.
 - 3 Develop an information system for a commercially driven agri-business.
 - 4 Utilise the information system to generate managerial information for improved decision-making.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Prepare an integrated whole farm budget.

Range: Use a set of templates or a computer program. Budget should include at least the gross farm incomes from all sources including interest sources, variable and fixed costs, foreign factor costs, net farm income and farming profit/loss.

Assessment criteria:

- 1.1 The previous year's cash-flow statement is utilised independently as major input for the following year's cash-flow budget ensuring that monthly income and all costs are clearly indicated.
 - 1.2 The previous year's income statement is utilised independently as major input for the following year's income budget ensuring that all income and all costs are clearly indicated.
 - 1.3 Various whole farm budgets are cross-reference independently to ensure horizontal compatibility.
 - 1.4 A clear understanding of the need for a whole farm budget with specific indication to how it will be applied in managerial decision-making is demonstrated.
-
2. Utilise sensitive analysis (what-if functions) to determine the economic and financial viability of a business.

Range: What-if situations include but are not limited to cash, credit income, direct and indirect costs, marketing scenarios, etc.

Assessment criteria:

- 2.1 Changes in selected values of income variables such as yield or product price and how it impact on farm/enterprise profitability are explained.
 - 2.2 Changes in values of selected cost variables such as input price and amounts and how it impact on farm/enterprise profitability are explained.
 - 2.3 Different outcomes (when the business environment changes) are predicted via the whole farm budget.
 - 2.4 Break-even analysis is executed to determine break-even points.
 - 2.5 The return on investment and cash flow is calculated and explained.
 - 2.6 The concept of stock turnover rate as well as the implications thereof is explained.
 - 2.7 Good practices in the buying of agricultural inputs are explained.
 - 2.8 Factors that can influence income, material, labour, fixed and variable costs are described.
3. Develop an information system for a commercially driven agri-business.

Range: Includes but is not limited to templates or a computer program.

Assessment criteria:

- 3.1 The functioning of a system where cash and credit income is recorded, is demonstrated.
 - 3.2 All material, labour, vehicle and other direct production costs is timely recorded.
 - 3.3 The functioning of an asset register, debtors and creditors control is explained.
 - 3.4 A detailed physical record system, which includes a full inventory, rainfall records, etc. is operated.
4. Utilise the information system to generate managerial information for improved decision-making.

Range: comparison with historical figures as well as the utilisation of the figures for future planning.

Assessment criteria:

- 4.1 Present indicators with historical indicators and to make rational deductions for improved managerial decision-making from it (R/ha, R/ton, etc). are compared.
- 4.2 Present year figures/data/information within the drafting of future budgets are utilised.
- 4.3 The economic and financial results are transferred and communicated to lower levels of employees in order to educate and motivate them.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Self-organisation and management** relates to specific outcomes 1-4.
3. **Information evaluation** relates to specific outcomes 1-4.
4. **Use science and technology** relates to specific outcomes 1-4.
5. **Inter-relatedness of systems** relates to specific outcomes 1-4.
6. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Integrated budget.
2. Causes and effects of changes in the value / supply chain on a budget.
3. Rules and principles of an information system for a commercialised agri-business.
4. The utilisation of present financial statements to generate managerial information.
5. Sensitivity analysis and break-even points.
6. Record-keeping.
7. Communication.
8. Utilisation of technology.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.2.3**AGRI-BUSINESS****TITLE****:ASSUME CO-RESPONSIBILITY AND PARTICIPATION IN HUMAN RESOURCE MANAGEMENT**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

4

CREDIT

:

3

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A learner achieving this unit standard will be able to participate in the development and implementation of an organisation's Human Resource management procedures and practices as well as be able to take co-responsibility for this. In addition the learner will be well positioned to extend his/her learning and experience within managing the diversity of human resources. The profession will benefit through a greater understanding of the needs of all stakeholders involved.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to human resource support.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Explain human resources policies and procedures.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Participate in the development of relevant Human Resources related to policy and procedures.
 2. Communicate the principle, practices, policies and procedures.
 3. Participate in the implementation plan of agreed policies contracts and agreements applicable at the workplace.
 4. Contribute to the monitoring and evaluation of Human Resource principles, plans, practices, policies and procedures.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Participate in the development of Human Resources related to policy and procedures.

Range: Policies and procedures include but are not limited to disciplinary, grievance, recruitment and selection, harassment, etc.

Assessment criteria:

- 1.1 Inputs based on knowledge of context and objectives of the specific plan and policy – employment equity, skills development, recruitment policy, selection criteria, etc. are provided.
- 1.2 Inputs provided, contribute to effective problem resolution.
- 1.3 Inputs provided are relevant, unambiguous and acceptable within the policy generation/amendment process.

2. Communicate the principle, practices, policies and procedures.

Range: Management level, worker level and external to the organisation level.

Assessment criteria:

- 2.1 Information is communicated accurately, transparent and unambiguously.
- 2.2 Feedback from constituencies are welcomed and encouraged.
- 2.3 Responsibility has been taken for the formulation of mandates and that it has been noted officially.
- 2.4 All communication occur in a transparent and inclusive way before deadlines.
- 2.5 All human resources records are accessible by all stakeholders in compliance with relevant legislation.

3. Participate in the implementation plan of agreed policies, contracts and agreements applicable at the workplace.

Range: Internal and external (employment equity, skills development, job creation, performance evaluation, training, etc.)

Assessment criteria:

- 3.1 Established plans and policies are interpreted and thus understood.
 - 3.2 The implementation of plans is effectively communicated to all stakeholders through various channels.
 - 3.3 Relevant and specific actions are utilised to implement plans, agreements and contracts.
 - 3.4 Effective two-way communication is maintained at all levels between all stakeholders.
 - 3.5 The necessary adjustments is effected to implementation processes when required.
 - 3.6 Any delays, the reasons for it and adjusted timeframes are communicated to stakeholders.
-
4. Contributes to the monitoring and evaluation of Human Resource principles, plans, practices, policies and procedures.

Range: Legislation, employment equity, skills development plan, personnel turnover ratio, remuneration bargaining processes, etc.

Assessment criteria:

- 4.1 Progress on various human resource issues such as targeted employment equity, skills development, the lowering of personnel turnover ratios through acceptable monitoring systems is monitored.
- 4.2 Regular feedback on human resource issues is given to management.
- 4.3 Regular feedback on human resource issues is given to other stakeholders.
- 4.4 Feedback from employees and other stakeholders is encouraged, received and acknowledged.
- 4.4 Feedback and inputs is reacted to and relevant issues are incorporate into adjustments to plans, policies and procedures as and when required.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-4.
2. **Teamwork:** relates to specific outcomes 1 – 4.
3. **Self-management:** relates to specific outcomes 1 and 4.
4. **Interpreting Information:** relates to specific outcomes 2 and 4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Use Science and Technology:** relates to specific outcomes 1, 2 and 4.
7. **The world as a set of related systems:** relates to specific outcome 4.
8. **Self-development:** relates to specific outcomes 1 – 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Equity issues related to employment equity plan, skills development plan, recruitment and selection policy, training initiatives, harassment policy, diversity initiation.
2. Consultation processes.
3. Problem solving processes related to implementation of Human Resource policy and procedure.
4. Relevant Labour legislations and its implementation e.g. BCEA, LRA, EEA, SDA, OHSACT.
5. Implication of not following agreed procedures, labour legislation.
6. Feedback to stakeholders and corrective/remedial measures.
7. Communication.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.2.4	AGRI-BUSINESS
TITLE	:PROCURE AND MANAGE AGRICULTURAL INPUT
SAQA LOGO	:
UNIT STANDARD NO	:
UNIT STANDARD LEVEL	: 4
CREDIT	: 3
FIELD	: Agriculture and Nature Conservation
SUB-FIELD	: Primary Agriculture
ISSUE DATE	:
REVIEW DATE	:

PURPOSE

The learner achieving this unit standard will be able to order, manage, control and issue agricultural inputs and products. In addition they will be well positioned to extend their learning and practice into other areas of agriculture.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to inputs, resources and sourcing.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Explain store inputs, categories, labelling and storage methods

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Check, receive and store a range of agricultural inputs appropriately.
 2. Check updated records and identify shortcomings where applicable.
 3. Order stock and process payment.
 4. Schedule the re-ordering of agricultural inputs.
 5. Issue various agricultural inputs from stores timely to prevent deterioration, spoilage and waste.
 6. Enforce legislation regarding handling and storage of agricultural inputs.
 7. Inspect and organise maintenance of equipment facilities and infrastructure.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Check, receive and store a range of agricultural inputs appropriately.

Range: This may include but is not limited to solids, powders, liquids and toxins.

Assessment criteria:

- 1.1 Supplies and equipment are ordered in terms of quantity and quality.
- 1.2 The principles involved in receiving and storage of different agricultural products are explained.
- 1.3 The main methods used in storage to prevent cross contamination of agricultural inputs are discussed.

2. Check updated records and identifies shortcomings where applicable.

Assessment criteria:

- 2.1 Updated records with stock are compared and confirmed.
- 2.2 Shortcomings with stock numbers are identified and rectified.
- 2.3 Stock levels are reported.

3. Order stock and process payment.

Assessment criteria:

- 3.1 Order documentation is completed correctly.
- 3.2 An order for agricultural inputs is processed.

3.3 Appropriate quantity of different agricultural inputs to order are calculated and prices compared.

4. Schedule the re-ordering of agricultural inputs.

Assessment criteria:

4.1 The consumption rate of different agricultural inputs is evaluated.

4.2 The re-order period of various agricultural inputs based on stock and usage is predicted.

4.3 The re-ordering of different agricultural inputs before time is scheduled.

5. Issue various agricultural inputs from stores timely to prevent deterioration, spoilage and waste..

Assessment criteria:

5.1 Information on documentation is interpreted.

5.2 Authorisation for stock issued is obtained.

5.3 Release required quantities of agricultural inputs in line with FIFO.

5.4 Update records continuously.

6. Enforce legislation regarding handling and storage of agricultural inputs.

Assessment criteria:

6.1 Legislation regarding supplies and storage is explained and stated.

6.2 Compliance to legislation is ensured.

6.3 Supervise others to comply with legislation.

7. Inspect and organise maintenance of equipment facilities and infrastructure.

Range: This may include but is not limited to tractors, implements, stores, dams, tunnels, pipes, land, kraal, tractors, implements and tools, etc.

Note: Specific equipment or infrastructure is subject to certain legislation regarding its maintenance and safety, such as dams and tractors and other road vehicles and tools and equipment.

Assessment criteria:

7.1 Equipment and facilities are inspected in line with legal or procedural requirements and maintenance thereof are organised.

7.2 Normal wear and tear is evaluated.

7.3 Damages in equipment and facilities are identified and inspected.

7.4 Service organisations for repair or maintenance of equipment and facilities are sourced.

7.5 Services or repair and process payment is evaluated.

7.6 Required service/repair costs in terms of supplier quality and cost/benefit are compared.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 7.
2. **Teamwork:** relates to specific outcomes 1 to 7.
3. **Self-management:** relates to specific outcomes 1 to 7.
5. **Communication:** relates to specific outcomes 1 to 7.
7. **The world as a set of related systems:** relates to specific outcomes 1 to 7.
8. **Self-development:** relates to specific outcomes 1 to 7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of various terms related to agricultural input.
2. Sensory and documented cues related to the logistics of agricultural products and inputs.
3. Understanding the effects of events and procedures with regard to various events during logistical management.
4. Understand the procedures implemented to perform input management.
5. Be aware of all legislation, laws, regulations and rules related to the input of agricultural facilities.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 4.2.5**AGRI-BUSINESS****TITLE****:DEVELOP AND MANAGE AN
AGRICULTURAL MARKETING PLAN**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

4

CREDIT

:

3

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A learner achieving this unit standard will be able to pro-actively analyse, strategise, plan and manage an integrated marketing. The learner will also be able to monitor progress and apply corrective measures should it be necessary. In addition the learner will be well positioned to extend his/her learning into the auditing field, thereby allowing the profession to benefit from the application of strategic and systems thinking within the marketing plan.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to marketing.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Explain the application of marketing principles within an alternative and dynamic agricultural marketing environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Structure a marketing plan using a systems approach.
 2. Structure a rolling marketing plan for a specific agricultural commodity.
 3. Structure a risk plan to accommodate variables and uncertainties in a marketing plan for a specific agricultural commodity.
 4. Monitor the marketing plan and apply remedial actions.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Structure a marketing plan using a systems approach.

Range: Apply to a total marketing value chain for a specific agricultural commodity.

Assessment criteria:

- 1.1 The structure of a marketing plan is recalled and explained.
- 1.2 Active participation in the identification of the strategic environment of at least a single identified agricultural product and/or service is demonstrated.
- 1.3 Active participation in the identification of the components of a marketing value and supply chain utilising a systems approach is demonstrated.
- 1.4 Active participation in the identification of the demand chain, utilising a systems approach, is demonstrated.
- 1.5 Active participation in the allocation of resources (human and financial) to action plans, is demonstrated.

2. Structure a rolling marketing plan for a specific agricultural commodity.

Range: Market places, positioning, pricing, packaging, promotion, logistics, and distribution; short, medium and long term plans; periodical adjustments.

Assessment criteria:

- 2.1 Active participation in the selection and interpretation of local and export market opportunities for the selected agricultural commodities is demonstrated.
- 2.2 Active participation in the identification and analysis of the critical success factors in the local and export marketing value and supply chain and support services for the specific agricultural commodity are demonstrated.
- 2.3 Active participation in the identification and assessment of in the following areas of the marketing mix - product positioning, pricing, packaging, freight

- logistics, and promotion strategies for selected local and/or export markets for at least a single specific agricultural commodity, is demonstrated.
- 2.4 Active participation in the structuring of the marketing plan over a period of at least more than one financial year, preferable indicating short, medium and long term marketing goals and action plans, is demonstrated.
3. Structure a risk plan to accommodate variable and uncertainties in a marketing plan for a specific agricultural commodity.

Range: Uncontrollable, controllable agricultural risks, agricultural business specific risks

Assessment criteria:

- 3.1 Various risks impacting on the marketing of at least a single agricultural commodity/service are identified and evaluated.
- 3.2 A risk component is incorporated within the broader marketing plan.
- 3.3 Active participation in the identification and description (quantification) of the impact of the variable risk types on the local and export market plan for at least a single specific agricultural commodity is demonstrated and ways to handle it is suggested.
- 3.4 Actively participation in the identification of the strategic intelligence process is demonstrated and the use of critical success factors as a pro-active risk management tool is illustrated and analysed.
- 3.5 Forward exchange cover, linkages, and outsourcing as options for risk management is appraised.
4. Monitor the marketing plan and apply remedial actions.

Range: Budget application, personnel allocation, marketing audit and adapted time frames.

Assessment criteria:

- 4.1 Timeframes for each component of each action plans are monitored.
- 4.2 Budget spending is monitored.
- 4.3 Human resource allocation, including external outsourced human resources is monitored.
- 4.4 Remedial actions within the marketing plan are identified and applied.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-4.
2. **Teamwork:** relates to specific outcomes 1-4.
3. **Self-management:** relates to specific outcomes 1-4.
4. **Interpreting Information:** relates to specific outcomes 1-4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Use Science and Technology:** relates to specific outcomes 1-4.
7. **The world as a set of related systems:** relates to specific outcome 1.
8. **Self-development:** relates to specific outcome 2.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Marketing plans, expanded to include up to long term marketing strategies.
- 2 Systems thinking.
- 3 Risk analysis.
- 4 Local and international markets.
- 5 Marketing mix.
- 6 Marketing audit.
- 7 Remedial actions within marketing plans.
- 8 Communication of marketing action plans and timeframes.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.2.5**AGRI-BUSINESS****TITLE****:DEVELOP AND MANAGE AN
AGRICULTURAL MARKETING PLAN**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

4

CREDIT

:

3

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A learner achieving this unit standard will be able to pro-actively analyse, strategise, plan and manage an integrated marketing. The learner will also be able to monitor progress and apply corrective measures should it be necessary. In addition the learner will be well positioned to extend his/her learning into the auditing field, thereby allowing the profession to benefit from the application of strategic and systems thinking within the marketing plan.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to marketing.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Explain the application of marketing principles within an alternative and dynamic agricultural marketing environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Structure a marketing plan using a systems approach.
 2. Structure a rolling marketing plan for a specific agricultural commodity.
 3. Structure a risk plan to accommodate variables and uncertainties in a marketing plan for a specific agricultural commodity.
 4. Monitor the marketing plan and apply remedial actions.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Structure a marketing plan using a systems approach.

Range: Apply to a total marketing value chain for a specific agricultural commodity.

Assessment criteria:

- 1.1 The structure of a marketing plan is recalled and explained.
- 1.2 Active participation in the identification of the strategic environment of at least a single identified agricultural product and/or service is demonstrated.
- 1.3 Active participation in the identification of the components of a marketing value and supply chain utilising a systems approach is demonstrated.
- 1.4 Active participation in the identification of the demand chain, utilising a systems approach, is demonstrated.
- 1.5 Active participation in the allocation of resources (human and financial) to action plans, is demonstrated.

2. Structure a rolling marketing plan for a specific agricultural commodity.

Range: Market places, positioning, pricing, packaging, promotion, logistics, and distribution; short, medium and long term plans; periodical adjustments.

Assessment criteria:

- 2.1 Active participation in the selection and interpretation of local and export market opportunities for the selected agricultural commodities is demonstrated.
- 2.2 Active participation in the identification and analysis of the critical success factors in the local and export marketing value and supply chain and support services for the specific agricultural commodity are demonstrated.
- 2.3 Active participation in the identification and assessment of in the following areas of the marketing mix - product positioning, pricing, packaging, freight

- logistics, and promotion strategies for selected local and/or export markets for at least a single specific agricultural commodity, is demonstrated.
- 2.4 Active participation in the structuring of the marketing plan over a period of at least more than one financial year, preferable indicating short, medium and long term marketing goals and action plans, is demonstrated.
 3. Structure a risk plan to accommodate variable and uncertainties in a marketing plan for a specific agricultural commodity.

Range: Uncontrollable, controllable agricultural risks, agricultural business specific risks

Assessment criteria:

- 3.1 Various risks impacting on the marketing of at least a single agricultural commodity/service are identified and evaluated.
 - 3.2 A risk component is incorporated within the broader marketing plan.
 - 3.3 Active participation in the identification and description (quantification) of the impact of the variable risk types on the local and export market plan for at least a single specific agricultural commodity is demonstrated and ways to handle it is suggested.
 - 3.4 Actively participation in the identification of the strategic intelligence process is demonstrated and the use of critical success factors as a pro-active risk management tool is illustrated and analysed.
 - 3.5 Forward exchange cover, linkages, and outsourcing as options for risk management is appraised.
4. Monitor the marketing plan and apply remedial actions.

Range: Budget application, personnel allocation, marketing audit and adapted time frames.

Assessment criteria:

- 4.1 Timeframes for each component of each action plans are monitored.
- 4.2 Budget spending is monitored.
- 4.3 Human resource allocation, including external outsourced human resources is monitored.
- 4.4 Remedial actions within the marketing plan are identified and applied.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-4.
2. **Teamwork:** relates to specific outcomes 1-4.
3. **Self-management:** relates to specific outcomes 1-4.
4. **Interpreting Information:** relates to specific outcomes 1-4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Use Science and Technology:** relates to specific outcomes 1-4.
7. **The world as a set of related systems:** relates to specific outcome 1.
8. **Self-development:** relates to specific outcome 2.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Marketing plans, expanded to include up to long term marketing strategies.
- 2 Systems thinking.
- 3 Risk analysis.
- 4 Local and international markets.
- 5 Marketing mix.
- 6 Marketing audit.
- 7 Remedial actions within marketing plans.
- 8 Communication of marketing action plans and timeframes.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.2.6**AGRI-BUSINESS**

TITLE	:	EXECUTE SUSTAINABLE RESOURCE USE AND QUALITY CONTROL
SAQA LOGO	:	
UNIT STANDARD NO	:	PAETA
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to understand efficient resource allocation, determining the size of the business and carry out efficient quality control methods. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and business management, benefiting the agricultural industry in the provision of competent trained management.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to production/conversion.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Explain the planning and scheduling of tasks in a production environment.
NQF 3: Explain Store Inputs, Categories, Labelling And Storage Methods.

NQF 3: Explain Costing And The Viability Of An Agricultural Business.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Determine availability of resources and maintain sustainable resource use.
 - 2 Determine the scope of the enterprise / production unit.
 - 3 Apply the principles of quality management systems.
 - 4 Integrate the concept of quality control into the production process.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Determine availability of resources and maintain sustainable resource use.

Range: Availability of resources refers to but is not limited to the quality, quantity and origin of resources

Range: Sustainable resource use refers to but is not limited to the efficient and effective usage of the resources while ensuring long-term use and availability.

Assessment criteria:

- 1.1 Resource planning is performed by identifying the status and availability of the required resources.
(Range: Resources refer to but are not limited to the various inputs required in the production process (seed, fertiliser, animals, feed, machinery, labour, capital, etc.)
(Range: The status refers to but is not limited to quantity and quality required, timing, source, etc.)
- 1.2 The essence of sustainable usage is defined and explained in order to describe the sustainable usage of resources.
- 1.3 Required and available resources are compared and a production plan incorporating all the available resources and information to produce the desired output at sustainable levels is developed.
- 1.4 Applicable legal requirements and the boundaries it puts on the agricultural processing activities are applied.
(Range: Legal requirements refer to but are not limited to Occupational Health and Safety Act and its regulations (labour and usage of inputs), standardisation of products (Agricultural Product Standards Act), other regulatory requirements, etc.)

2. Determine the scope of the enterprise / production unit.

Range: The scope refers to the extent in financial, resource, inputs, outputs and physical terms

Assessment criteria:

- 2.1 The concept: Economies of scale is explained.
- 2.2 The effect of the factors that determine the size of an enterprise / production unit are identified and explained.
(Range: Factors refer to but are not limited to the availability of resources, demand, facilities, capabilities etc.)
- 2.3 The factors that influence the size of the enterprise and determine on the level on which the business will be able to operate are identified and evaluated.
(Range: Level of operation refers to but is not limited to the relative terms small, medium, large.)

- 3. Apply the principles of quality management systems.

Range: Quality management refers to but is not limited to all the steps and actions in the control process to ensure certain production level and quality and includes procedures such as Work Study, proprietary systems such as TQM, QES, ISO, HACCP, EURAPGAP, simple adjustments, internal development, etc.

Assessment criteria:

- 3.1 The concept of quality is defined.
- 3.2 An understanding of quality management is demonstrated by explaining the principles and components of systems.
(Range: Principles of quality management refer to but are not restricted to the motivation for quality management and the steps that have to be followed during quality control inspections; customer-supplier chains and specific terms used within quality management systems (such as Price of Non-Conformance, Zero Tolerance, etc.).)
- 3.3 Various quality management methods that can be followed and develop / select a relevant quality control method for the enterprise / production unit are identified and selected.

- 4. Integrate the concept of quality control into the production process.

Range: Quality control refers to but is not limited to all the steps and actions in the control process to ensure certain production level and quality.

Assessment criteria:

- 4.1 Data gleaned off production and processing systems related to product quality is gathered and processed.
- 4.2 Attributes of the production process that relate to the product's quality are investigated and reported on.
- 4.3 The impact of various procedures, systems and methodologies on the quality of products are evaluated.
- 4.4 Cost/benefit analysis regarding the effect of such processes and procedures is developed.
- 4.5 Relevant communication to demonstrate and motivate the implementation of changes in the processing of animal products is developed and produced.
- 4.6 (Range: communication includes but is not limited to reports, presentations, shows, demonstrations, visits, books and pamphlets).

- 4.7 The resulted quality of the production process and recommend specific remedial actions that can improve the situation is assessed.
(Range: Remedial actions may refer to a change in the production method of change in the input allocations, but is not limited to the above mentioned).
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Teamwork** relates to specific outcomes 1-4.
3. **Self-organisation and management** relates to specific outcomes 1-4.
4. **Information evaluation** relates to specific outcomes 1-4.
5. **Communication** relates to specific outcomes 1-4.
6. **Use science and technology** relates to specific outcomes 1-4.
7. **Inter-relatedness of systems** relates to specific outcomes 1-4.
8. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Sustainable resource allocation.
2. Legal requirements effecting production.
3. Economy of scale.
4. Optimisation.
5. Quality management methods and systems.
6. Reporting skills.
7. The purpose of learning about production and conversion.
8. Basic systems management.
9. Application of theoretical knowledge.
10. Business management.

SUPPLEMENTARY INFORMATION

NOTES

END-

LEVEL 4.2.7**AGRI-BUSINESS**

TITLE : PARTICIPATE IN THE DEVELOPMENT AND MANAGEMENT OF AN AGRI BUSINESS PLAN

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 4

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this competence will be able to pro-actively participate in the analysis, planning and management of a sustainable agri-business within a volatile and competitive business environment.

In addition the learner will be well positioned to extend the learning and practice into other areas of strategic management. The profession will benefit from the strategic thinking required from learner who achieved competence in this unit standard.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to planning.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF3: Interpret factors influencing agricultural enterprises and plan accordingly.
NQF 3: Explain costing and the viability of an agri-business.
NQF3: Supervise the collection of agricultural data

A learner attempting this unit standard must be able to demonstrate a good understanding of the agricultural value and supply chain. In addition sound communication will assist in this unit standard. Record keeping, meeting procedures and marketing principles will also be of value and assistance.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of the general management functions within an agri-business.
2. Use a systems approach to structure an agri-business plan.
3. Structure a rolling agri-business plan.
4. Structure an agri supply chain to optimise the production to marketing flow.
5. Implement an information system as planning and management support.
6. Demonstrate an understanding of and implement risk planning within the monitoring process.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of the general management functions within an agri-business.

Range: Apply to all types and sectors in agriculture, both small-scale and commercial.

Assessment criteria:

- 1.1 Management activities and responsibilities involved in running an agri-business are describe and explained.
- 1.2 Basic activities involved in the agri-management process are explained by providing examples and/or scenarios.
- 1.3 Tasks required of managers at all management levels are identified and explained.
- 1.4 An understanding of the general management functions in an agri-business is demonstrated.

2. Use a systems approach to structure an agri-business plan.

Range: Apply to all types of agri-business and the total value and supply chain.

Assessment criteria:

- 2.1 The components of the agri value and supply chain (including local and export marketing) as a systems approach planning and management reference model are identified.
 - 2.2 The necessity of a total farm strategy in an agri-business plan is explained.
 - 2.3 The structure and components of an agri-business plan is explained.
3. Structure a rolling agri-business plan.

Range: Integrate total agricultural value chain components of the relevant agricultural sector.

Assessment criteria:

- 3.1 Critical success factors (CSF) per value and supply chain element and support services in an agri-business are identified and evaluated.
 - 3.2 Entrepreneurial and management potential of the agricultural manager and identify strengths and weaknesses are appraised.
 - 3.3 External environment is appraised and opportunities and threats to which the agribusiness should respond are identified.
 - 3.4 Processes to prepare an integrated business plan relevant for the selected sector is participate in.
 - 3.5 Participation in the drafting of a local/export market plan relevant for the selected sector is performed.
4. Structure an agri supply chain to optimise the production to marketing flow.

Range: Integrate total agricultural supply chain components of the chosen agricultural sector.

Assessment criteria:

- 4.1 Planning, implementation and management structures of the sourcing, production, delivery/marketing aspects of the relevant agricultural sector supply chain is identified.
 - 4.2 Suitable performance indicators to evaluate the sourcing, production and distribution aspects of the chosen agricultural sector supply chain is designed.
 - 4.3 The general supply chain management principles to an agri-business with the dynamic nature of its environment in mind are adapted.
5. Implement an information system as planning and management support.

Range: Apply to all components of the agricultural value & supply chain and includes budgeting, marketing and human resource allocation.

Assessment criteria:

- 5.1 A communication and implementation strategy for the operationalisation of the business plans at all levels is identified.
- 5.2 Local/export market and business information systems are interpreted and selected.

- 5.3 Benchmarking is integrated into the planning, monitoring and management process.
6. Demonstrate an understanding of and implement risk planning within the monitoring process.

Range: Apply to all components of the value/supply chain.

Assessment criteria:

- 6.1 The impact of uncontrollable, controllable and business specific risks and the basic approach to handling each are described.
- 6.2 The strategic intelligence process and illustrate the tools of Critical Success Factors (CSF) and Strategic Issue Analyses (SIA) as pro-active risk management tools are defined.
- 6.3 The use of the scenario methodology to structure alternative outcomes of risks is illustrated and thus best planning and remedial options are identified.
- 6.4 The impact of alternative risk outcomes on budget and business plans are evaluated.
- 6.5 Networking, linkages, and outsourcing as part of risk planning are appraised.
- 6.6 Participation in the monitoring process of the implemented business and risk plans are effected.
- 6.7 Remedial action plans within a changing business environment are identified and implemented, should it become necessary.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** relates to specific outcomes 1 to 6.
2. **Teamwork:** relates to specific outcomes 1 to 6.
3. **Self-organisation and management:** relates to specific outcomes 1 to 6.
4. **Information evaluation:** relates to specific outcomes 1 to 6.
5. **Communication:** relates to specific outcomes 1 to 6.
6. **Use science and technology:** relates to specific outcomes 1 to 6.
7. **Inter-relatedness of systems:** relates to specific outcomes 1 to 6.
8. **Self-development:** relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Strategic analysis.
2. Business plan development.
3. Budgeting.
4. Human resource allocation.
5. Marketing.

6. Identification of internal strengths.
7. Identification of internal weaknesses.
8. Identification of external opportunities.
9. Identification of external threats.
10. Risk planning.
11. Critical success factors.
12. Bench-marking.
13. Remedial actions.
14. Information systems.
15. Communication of business plans.
16. Scenario planning.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.2.8**AGRI-BUSINESS**

TITLE : GIVE AN OVERVIEW OF THE INDUSTRY STRUCTURE

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 4

CREDIT : 2

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to understand the historical and current structure of the relevant industry within which he operates, including organisations, media, Government and NGO structures as well as awareness of any relevant legislation pertaining to all aspects of the industry. In addition, they will be well positioned to extend their learning and practice into other areas of any industry.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to the agricultural industry.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No prior learning is assumed to be in place.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Explain the historical and current framework structure of the industry.
 2. List media published from time to time within, for, about, on and on behalf of the industry.
 3. List all relevant Government Departments that affect the specific industry.
 4. Name all legislation pertaining to the specific industry.
 5. Name and describe supportive resources, associations, groups, networks and services available to assist members of the industry.
 6. Describe the various relationships within the industry as well as between the specific industry and its components and others within and outside of the sector.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Explain the historical and current framework structure of the industry.

Range: Industry structures include but are not limited to important individuals, enterprises and enterprise types, associations, groupings, local, regional, provincial or national Government Departments, unions, research organisations and NGOs.

Assessment criteria:

- 1.1 The structure of the industry and all its related structures in a historical and current perspective are described.
- 1.2 A framework, which depicts the industry in order to evaluate his position with respect to the rest of the industry, is described.
- 1.3 Relationships between the various structures within the industry is described.

2. List media published from time to time within, for, about, on and on behalf of the industry.

Range: Media include but are not limited to electronic or digital media (SMS, radio or television broadcasts, email, internet, newsgroups, DVD, video, CD), paper media (books, trade and technical periodicals), discussion groups and forums, agendas, minutes, newspapers, magazines.

Assessment criteria:

- 2.1 Published media are listed.
- 2.2 Methods to access published media are described.
- 2.3 Published media is accessed and utilised.

3. List all relevant Government Departments that affect the specific industry

Range: Government Departments include but are not limited to local, regional, provincial and national government departments and structures relating to any and all facets of the industry.

Assessment criteria:

- 3.1 Clear awareness of all the various government departments and their influence sphere as it applies to the specific industry is indicated.
 - 3.2 Methods to access government departments and to comply with the requirements of such departments are clearly indicated.
 - 3.3 Communication systems and contacts by which access to relevant Government Departments may be established, are developed.
4. Name all legislation pertaining to the specific industry.

Range: Legislation pertaining to the industry includes, but is not limited to those related to production, marketing, administration, public relations, finances, human resources, taxation, local, regional and national affairs.

Legislation includes but is not limited to rules, regulations, Acts, governmental notices, Administrator's notices, legal written or spoken instructions by officials, signage and indicators.

Assessment criteria:

- 4.1 A working awareness of all the various legislation and their effect as they apply to the specific industry is indicated.
 - 4.2 Working knowledge of methods to access all relevant legislation that pertains to the industry is indicated.
 - 4.3 Compliance with all relevant legislation is indicated.
5. Name and describe supportive resources, associations, groups, networks and services available to assist members of the industry.

Range: Supportive resources include but are not limited to Associations, unions, action or lobby groups, networks or services.

Assessment criteria:

- 5.1 Supportive resources within the industry are described.
 - 5.2 Methods to access supportive industry resources are applied.
 - 5.3 The value of membership of and / or access to various supportive resources, listing clearly advantages and disadvantages are explained.
6. Describe the various relationships within the industry as well as between the specific industry and its components and others within and outside of the sector.

Range: Relationships include but are not limited to agreements (verbal or written), contracts, constitutions and ownership

The importance of a component includes but is not limited to social, economic (financial, employment, public relations), political, organisational importance

Assessment criteria:

- 6.1 The relationships between the various components of the industry are described.
 - 6.2 The importance of the specific industry to its sector and to other industries within the sector is described.
 - 6.3 The importance of the industry and the sector, to other sectors is described.
 - 6.4 The importance of the industry and the sector, to society is described.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** relates to specific outcomes 1, 2 and 5.
2. **Problem Solving:** relates to specific outcomes 2, 3, 4 and 5.
3. **Self Organisation and Management:** relates to specific outcomes 1 to 5.
4. **Communication:** relates to specific outcomes 2, 4 and 5.
5. **Personal Development:** relates to specific outcomes 1 to 5.
6. **Interpretation of information:** relates to specific outcomes 2, 3, 4 and 5.
7. **The world as a set:** relates to specific outcomes 1, 2, 3 and 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Basic comprehension and understanding of the industry.
- 2 All legal implications of the individual's participation and involvement in the industry.
- 3 Implications of networking and associating within the industry, within the sector and across industries and sectors, including access to support.
- 4 Impact of his own operation on the industry and its structures, the sector, other sectors and society.
- 5 The purpose of the industry structures, media, networks and resources.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 4.3.1**AGRICULTURAL PRACTICES**

TITLE : IMPLEMENT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 4

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to implement a management system related to food safety, production practices, as well demonstrate environmental and social awareness within the agricultural supply chain.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal, plant and mixed farming sub fields. This unit standard focuses on the application of food safety principles in primary agriculture.

Competent learners will be fully competent in food safety practices whereby providing the environment for the application of quality practices and thus strengthen agricultural practices in general. They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Apply of crop protection and animal health products effectively and responsibly.

NQF 3: Explain store inputs categories, labelling and storage methods.

NQF 3: Monitor and supervise a food safety and quality management system in the agricultural supply chain.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Manage a traceability system demonstrating operational efficiency in the agricultural supply chain.
 2. Control and maintain a record system on the farm.
 3. Manage and maintain good agricultural practices (GAP) associated with good manufacturing practices (GMP), good health practices, social responsibility and good environmental practices.
 4. Take decisions on reported non-conformances in respect of food safety, production, environmental and social practices and implement corrective action in the agricultural environment.
 5. Conduct internal audits according to the specifications of the trade/market in the agricultural environment.
 6. Maintain standard operational procedures with regard to agro-chemicals, food safety, quality production practices and environmental and social awareness within the agricultural supply chain.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Manage a traceability system demonstrating operational efficiency in the agricultural supply chain.

Range: Traceability system includes but is not limited to a system that allows for problems to be traced back to the points of origin, both pre-harvest and post-harvest.

Assessment criteria

- 1.1 The purpose of a traceability system is explained.
(Range: In relation to the local agricultural market and international agri-trade).
- 1.2 Practices, which will support operational efficiency of a traceability system are identified.
- 1.3 The record keeping which supports a traceability system is explained.
- 1.4 Evidence of traceability records provided.

2. Implement a record system on the farm.

Range:

A record system includes but is not limited to a manual and electronic system that allows for a paper or electronic trail of activities and management systems on the farm.

Assessment criteria

- 2.1 Evidence of good record keeping practices is provided.
(Range: Records include but are not limited to production, agrochemicals/ pests and diseases/ fertiliser/ irrigation/ application of chemicals, worker welfare/ safety/ security and training, soil management, soil history).
 - 2.2 Relevant documentation of the different activities of the agricultural enterprise is managed is described and supplied.
 - 2.3 The flow of information is controlled and accessed to ensure effective distribution of information.
 - 2.4 The role of this process and how it complements the traceability process is discussed.
3. Manage and maintain good agricultural practices (GAP) associated with good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP).

Range: Management and maintenance includes but is not limited to ensuring that the activities of one regulatory process compliments the other.

Assessment criteria

- 3.1 Concepts of good manufacturing practices in the agricultural food chain are described.
 - 3.2 The complimentary nature of these regulatory processes and how it impacts on the management of the agricultural enterprise are described.
 - 3.3 The management and maintenance of above processes are explained.
 - 3.4 The flow of the process to achieve the goals is illustrated.
4. Take decisions on reported non-conformances in respect of food safety, production, environmental, and social practices and implement corrective action in the agricultural environment.

Range: Taking decisions and implementing corrective action includes but is not limited to addressing the problems encountered in order to assist with the implementation of corrective processes in order to achieve the set goals.

Assessment criteria

- 4.1 Examples of non-conformances and the effect thereof on quality of the product are described.
- 4.2 The role of traceability and record keeping system in the identification of non-conformances are described.
- 4.3 The effect of non-conformances is identified and explained.
(Range: Non-conformances relate to but are not limited to chemical, microbiological and physical contamination).
(Range: Management systems include but are not limited to production, Fertiliser/agrochemical/irrigation, product handling, hygiene and safety, quality, waste and pollution, social and welfare, environment, record keeping).
- 4.4 Different types of corrective action are described and implemented.

5. Conduct internal audits according to the specifications of the trade/market in the agricultural environment.

Range: Internal audits include but is not limited to implementing checks and balances that assist the GMP to ensure good agricultural practices in keeping with the rights of the workers and the environment.

Assessment criteria

- 5.1 The purpose, importance and effect of an internal audit are explained.
- 5.2 The procedure of an internal audit is explained.
(Range: Within the standard operation procedures of the enterprise).
- 5.3 An internal audit is performed.
- 5.4 The management of such a process is explained and how the results assist with improving certain aspects of the agricultural enterprise.

6. Maintain standard operational procedures with regard to agro-chemicals, food safety, quality, and production practices, as well as environmental and social awareness within the agricultural supply chain.

Range: Standard operational procedures include but are not limited to food safety, quality, production practices, environmental, and social awareness within the agricultural supply chain.

Assessment criteria

- 6.1 Standard operation procedures of the enterprise are explained.
(Range: Related to food safety, quality, production practices, environmental and social awareness within the agricultural supply chain).
- 6.2 The management of the different aspects of the agricultural enterprise with respect to traceability and regulatory procedures are described.
- 6.3 The impact of non-conformance to the basic regulatory processes on the trade of the product is explained and discussed.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-6.
2. **Teamwork** relates to specific outcomes 1-6.
3. **Self-organisation and management** relates to specific outcomes 1-6.
4. **Interpreting information** relates to specific outcomes 1-6.
5. **Communication** relates to specific outcomes 1-6.
6. **Use science and technology** relates to specific outcomes 1-6.
7. **Inter-relatedness of systems** relates to specific outcomes 1-6.
8. **Self-development** relates to specific outcomes 1-6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Principles of regulatory and legal aspects with reference to the specific agricultural enterprise.
2. A basic understanding of food-borne illnesses.
3. A basic knowledge of the Impact of food safety and quality in trade.
4. A thorough understanding of contamination risks and preventative measures.
5. Contamination risks.
6. Contamination preventative measures.
7. A basic understanding of risk factors related to food safety.
8. Be familiar with the principles of food safety and quality.
9. Basic principles of environmental and conservation management.
10. Basic principles of waste and pollution management.
11. Basic principles of natural resource management.
12. Local legislation such as Occupational Health and Safety, Health and Welfare,
13. A basic understanding of procedures of internal audits, traceability, and management skills.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.3.2**AGRICULTURAL PRACTICES**

TITLE	:	ESTABLISH A PLAN FOR THE MONITORING, SAFE USE AND MAINTENANCE OF EQUIPMENT IMPLEMENTS, TECHNOLOGY AND INFRASTRUCTURE
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to design, prepare and implement basic operational procedures for the cleaning, storage and proper maintenance of equipment, implements and infrastructure. The learner will also be able to monitor the safe use of equipment, technology, infrastructure and implements.

In addition learners will be well positioned to extend their learning and practice into other areas of agriculture, or to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural regulations and aspects of safety as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Apply routine maintenance and servicing plans and procedures.

NQF 2: Define and understand production systems and production management.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Develop a task related work program related to the scheduling and allocation of equipment and implements.
 2. Prepare and implement basic operational procedures for the cleaning, storage and proper maintenance of equipment, implements and infrastructure.
 3. Recognise, identify and solve problems related to the use of implements and equipment in an agricultural environment.
 4. Draw up plans to ensure that safety regulations are implemented as prescribed for the use of implements, agro-chemicals and equipment.
 5. Adapt equipment, implements and technology to suit different agricultural situations and processes.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Develop a basic task related work program related to the scheduling and allocation of equipment and implements.

Assessment criteria:

- 1.1 The information required to develop a task-related work plan is identified and collected.
- 1.2 Equipment and implements are identified and allocated efficiently.
- 1.3 The skill needs of the work team are identified.
- 1.4 A task-related work plan is developed.

- 2 Prepare and implement basic operational procedures for the cleaning, storage and proper maintenance of equipment, implements and infrastructure.

Range: Maintenance of equipment, implements and infrastructure includes, but is not limited to the draining and replacing oil in a tractor, adjusting fan belts, checking tyre pressure of trucks, adjusting a plough angle, and adjusting the hydraulic lift on tractor.

Assessment criteria:

- 2.1 Maintenance procedures are modified, prepared and implemented.
- 2.2 Major servicing of equipment is performed.
- 2.3 Equipment not functioning efficiently is adapted.
(Range: Equipment refers to any of those that are used in the agricultural sector to perform functions that include, but are not limited to, fertiliser distribution, shearing, water distribution, sprayers, vehicles, and tractors. Fertilizer distribution faulty, mechanized shearing tool jaggging, water distribution wrong, cutting / digging tools blunt, pressure drop because of blocked pipe, blocked nozzles in spraying boom, etc.)

- 2.4 Re-calibration of appropriate equipment is performed or requested.
(Range: Fertilizer spreader, oil and re-adjust shearing tool, adjust water pressure / irrigation pipe distances, sharpen tools, unblock pipes, clean nozzles, etc.)
 - 2.5 Safety elements of equipment / tool / technology is adjusted i.e. safety shields.
- 3 Recognise, identify and solve problems related to the use of implements and equipment in an agricultural environment.

Range: Problem indicators may refer to any unusual occurrence, to possible cause of a problem and steps to resolving the problem.

Assessment criteria:

- 3.1 The possible causes of the problem encountered during task execution are identified.
 - 3.2 Steps to be taken to rectify problems encountered are planned and organised.
 - 3.3 The consequences of not resolving an encountered problem are explained.
(Range: Consequences could be anything from 'Animal could die', to 'Task not completed on time', 'Staff / workers endangered', or 'Environmental damage could occur.')
 - 3.4 Alternative methods and contingency plans are identified and implemented.
 - 3.5 Problems that cannot be resolved are identified and reported timeously.
- 4 Draw up plans to ensure that safety regulations are implemented as prescribed for the use of implements, agro-chemicals and equipment.

Range: The plan should be based on the accident prevention policy of the organisation, and basic safety precautions as outlined in the National Occupation Safety Act, to prevent fires, accidents, chemical spills and injury.

Assessment criteria:

- 4.1 The implementation of the NOSA Act is explained.
 - 4.2 The necessary safety procedures in the handling of fuel, agro-chemicals, equipment and implements are identified and implemented.
 - 4.3 The procedures for the safe use and operation of implements and equipment are communicated to others.
- 5 Adapt equipment, implements and technology to suit different agricultural situations and processes.

Range: The function and use of equipment, implements and technology can be applied differently in different circumstances, depending on the context.

Assessment criteria:

- 5.1 The required task or function is identified and explained.
- 5.2 The correct equipment, implement or technological application that could fulfil the function is identified.

- 5.3 The equipment and/or implements are adjusted or adapted to fulfil the required function.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 - 5.
2. **Teamwork** relates to specific outcomes 1- 5.
3. **Self-organisation and management** relates to specific outcomes 1, 3, 4, & 5.
4. **Information evaluation** relates to specific outcomes 1, 2, 4, & 5.
5. **Communication** relates to specific outcomes 1 - 5.
6. **Use science and technology** relates to specific outcomes 1 - 5.
7. **Inter-relatedness of systems** relates to specific outcomes 1, 3, 4, & 5.
8. **Self-development** relates to specific outcomes 1, 4, & 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic scheduling and work flow.
2. Operational procedures.
3. The safe handling of tools and equipment.
4. The NOHSA Act and how it applies in the agricultural sector.
5. The principles of safety precautions.
6. Determining damaged and faulty equipment.
7. The use and adaptation of tools, equipment and machinery in different combinations.
8. Teamwork and communication.
9. Work program development.
10. Identification and resolving problems related to a work program.
11. The benefits of a well prepared work plan.
12. Personnel management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.3.3

AGRICULTURAL PRACTICES

TITLE	:	MANAGE WATER QUALITY PARAMETERS
SAQA LOGO	:	PAETA
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary agriculture: Farming
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

A learner will be able to implement corrective actions based on water quality parameters. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and water management.

Learners will gain specific knowledge and skills in maintaining water quality and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Maintain water quality parameters.

NQF 3: Recognize and identify the basic functions of the ecological environment.

NQF 3: Apply routine maintenance and servicing plans and procedures.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Correctly assess, analyze and evaluate data and decide on corrective actions within operational technical systems independently to well-defined but possibly unfamiliar problems.
 2. Demonstrate a thorough understanding of the reasons, impacts and implications of specific corrective actions.
 3. Implement corrective actions related to the quality of water and water quality systems
 4. Evaluate the effects of corrective actions or adjustments on the water quality requirements
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Correctly assess, analyze and evaluate water quality data and independently decide on the corrective actions within operational technical systems to well defined, but possibly unfamiliar problems.

Range:

This will include:

- Physical factors such as temperature, suspended solids, plankton, clay turbidity.
- Chemical factors such as: dissolved gasses such as oxygen, ammonia, pH.
- Dissolved solids such as: salinity, super saturation, pollutants, and heavy metals.
- Microbiological characteristics: (*E. coli*, *Vibrio sp.*, *Salmonella sp.*, algal blooms, and possible diseases.)
- Biological processes such as: photosynthesis, nitrogen cycle, decomposition, and energy budgets.
- Operational technical systems: aeration, filtration, protein skimming, screening, bio-filtration, degassing, nutrient stripping, sterilization such as ozonation, UV sterilization and chlorination.

Assessment criteria:

- 1.1 A thorough understanding of the effects of certain physical factors is demonstrated and is related and applied as a standard procedure or a corrective action to relevant plant or animal species.
- 1.2 A thorough understanding of the effects of certain chemical factors is related to and applied as a standard procedure or a corrective action to relevant plant or animal species.
- 1.3 A thorough understanding of the effects of certain microbiological characteristics is related to and applied as a standard procedure or a corrective action to relevant plant or animal species.

- 1.4 A thorough understanding of the effects of certain biological processes is related to and applied as a standard procedure or a corrective action to relevant plant or animal species.
- 1.5 A thorough knowledge and understanding of the principles and use of operational technical systems is related, integrated and applied as a standard procedure or a corrective action to relevant plant or animal species.
2. Demonstrate a thorough understanding of the reasons, impacts and implications of specific corrective actions related to water quality.

Assessment criteria:

- 2.1 A wide range of scholastic and technical concepts related to water and all its aspects is recalled.
 - 2.1 An analysis of collected data or information and the reasons for specific corrective actions are explained and presented.
 - 2.2 Information, especially within the context of corrective actions is independently accessed, analyzed and evaluated.
3. Implement corrective actions related to the quality of water and water quality systems.

Assessment criteria

- 3.1 Water quality and processing systems are explained and described.
 - 3.2 Quality management systems, as related to water quality are described.
 - 3.3 Quality in existing implemented water quality assurance systems is maintained.
 - 3.4 Water quality and processing systems, ensuring water quality and integrity is maintained.
4. Evaluate the effects of corrective actions or adjustments on the water quality requirements.

Assessment criteria

- 4.1 The implementation of corrective actions or adjustments on water quality, supply and integrity is evaluated.
- 4.2 Further adjustments or adaptations to water supply and quality management systems are proposed.
- 4.3 Water quality management systems are in place and reported on continuously.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may

include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** Relates to all specific outcomes.
2. **Teamwork:** Relates to all specific outcomes.
3. **Self Management:** Relates to all specific outcomes.
4. **Communication:** Relates to all specific outcomes.
5. **Interpreting information:** Relates to all specific outcomes.
6. **Science and Technology:** Relates to all specific outcomes.
7. **The world as a set:** Relates to all specific outcomes.
8. **Self-development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of all the various components of water supply and quality systems.
2. Attributes of water related to water quality.
3. The requirements of organisms related to their water need.
4. The purposes of maintaining relevant water quality for living organisms.
5. Measurement and recording technique.
6. Water purification techniques and systems.
7. Relevant legislation related to the feeding and care of living organisms.
8. Relevant legislations related to water use and environmental issues.
9. Interpersonal skills related to communication.
10. Sensory and documented cues related to water quality.
11. Sensory cues related to the water requirements and use of water by living organisms.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.3.4**AGRICULTURAL PRACTICES**

TITLE	:	IMPLEMENT A NATURAL RESOURCE MANAGEMENT PLAN
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture: Farming
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to explain the importance of natural resource management in relation to regional agricultural practices. The learner will be able to incorporate this understanding into the implementation of a natural resource management plan of the farm, which draws on a broader area wide plan.

Competent learners will be fully conversant with agricultural regulations and aspects of conservation, providing the basis for the application of quality practices.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of natural resource management in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

The learner should demonstrate competence against the unit standard:

Monitor natural resource management practices, NQF 3, or equivalent.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Assess the efficiency of the routine natural resource management practices and/or applications on the farm.
 - 2 Select and apply (from a range of preventative and/or rehabilitation measures) the most appropriate to the specific regional/local context.
 - 3 Contribute to strategic planning in terms of natural resource management as relevant to the farm.
 - 4 Schedule activities related to alien eradication, erosion control, seasonal and climatic conditions, natural resources use and effective use of water.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Assess the efficiency of the routine natural resource management practices and/or applications on the farm.

Range: Natural resource management practices include soil erosion management and rehabilitation of degraded areas, rainwater harvesting, maintenance of catchment areas, establishment of rehabilitation areas, invasive alien plant control, fire precautions and sustainable agricultural practices with regard to natural resources.

Assessment criteria:

- 1.1 Veld types, flora and fauna present, ecosystems in the area, are known.
- 1.2 Sensitivities relating to endangered or rare/ endemic species are appreciated.
- 1.3 Management practices are scheduled, monitored and reviewed when appropriate.

- 2 Select and apply (from a range of preventative and/or rehabilitation measures) the most appropriate to the specific regional/local context.

Range: Routine mechanical and non-mechanical applications.

Assessment criteria:

- 2.1 The degree of deterioration / degradation is taken into account.
- 2.2 The availability of resources is assessed.
- 2.3 Topography, climate, vegetation and soil are taken into consideration.
- 2.4 Planned use of the land is taken into account.

- 3 Contribute to strategic planning in terms of natural resource management as relevant to the farm.

Range: Strategic planning in terms of ensuring the long-term viability of the resources on the land.

Assessment criteria:

- 3.1 Verify and process data on natural resource prevalence and conditions.
 - 3.2 Analyse data and make recommendations.
 - 3.3 Monitor and evaluate changes in biodiversity over time.
4. Schedule activities related to alien eradication, erosion control, seasonal and climatic conditions, and use of natural resources.

Range: Appropriate activities are scheduled for the season.

Assessment criteria:

- 4.1 Above activities are reflected in the year plan.
- 4.2 Activities coincide with agricultural activities and do not clash with the production schedule.
- 4.3 Tasks are delegated to workers appropriately.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Self-organisation and management** relates to specific outcomes 1-4.
3. **Information evaluation** relates to specific outcomes 1-4.
4. **Communication** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Principles of natural resources management.
- 2 Fire fighting (advanced).
- 3 Data processing techniques.
- 4 Principles of sustainability.
- 5 Methods of scheduling.
- 6 Definitions and terminology.
- 7 Methods of strategic planning.
- 8 Basic principles of budgeting.

- 9 Characteristics of soil types.
- 10 Rules of gravity.
- 11 Disasters that occur in the area.
- 12 Basic knowledge of holistic resource management
- 13 Environmental impact assessment.
- 14 Communication techniques.
- 15 Acts and legislation on “conservation of Agricultural Resources”.
- 16 OHS Act.
- 17 Natural Resource Conservation Act.
- 18 The water cycle.
- 19 The ecosystems.
- 20 The energy cycle.
- 21 Principles of sustainability.
- 22 Classification of fauna and flora relevant to the area.
- 23 Alien species relevant to the area.
- 24 Soil types and characteristics,
- 25 Definitions.
- 26 Terminology.
- 27 Prevailing climatic conditions of the area.
- 28 Sources of water.
- 29 Sources of energy (renewable and non renewable).
- 30 Topography.
- 31 Types of pollution.
- 32 Importance of natural resources management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.3.5**AGRICULTURAL PRACTICES****TITLE:****IMPLEMENT INTEGRATED FARM LAYOUT
AND SITE SELECTION**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

4

CREDIT

:

3

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A learner achieving this unit standard will be able to contribute to the natural resource data gathering process, assist in determining the most appropriate and sustainable land-use for different parts of the land, supervise the implementation and maintenance of the selected infrastructure and maintain the most appropriate land-use on a farm by continuously assessing the natural resource base.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Assist in farm planning and layout for conservation and rainwater harvesting.
NQF 3: Monitor and supervise a food safety and quality management system in the agricultural supply chain.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Prepare and categorise collected and recorded information in an agricultural environment that informs the infrastructure development of an agricultural enterprise.
 2. Demonstrate the ability to identify high and low yield potential areas according to a range of land use options and criteria.
 3. Organise and plan maintenance tasks related to the natural resource base of a farm, including the supervision of other workers.
 4. Monitor and maintain sustainability-based farm layout innovations that have been implemented in an agricultural environment as part of a land use plan.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Prepare and categorise collected and recorded information in an agricultural environment to support the infrastructure development of an agricultural enterprise.

Range: Infrastructure development may refer to intensive or extensive crop and animal systems, as well as aquaculture and/or horticultural production systems. Data could be collected in a range of forms that include computer, pen and paper, peg board, diagrams, comprehensive farm plans, etc. and can be entered in formats such as tables, graphs, simple markings, maps, etc. Service providers in the agricultural environment include government, non-government, parastatal or other organisations, which render services related to the sustainable use of natural resources.

Assessment criteria:

- 1.1 A useable and relevant database of service providers and information is compiled.
 - 1.2 The contribution of information on soil, climate and slope to land capability analysis and the development of a land use plan is explained.
-
2. Demonstrate the ability to identify high and low yield potential areas according to a range of land use options and criteria.

Range: The land use options may refer to intensive or extensive crop and animal systems, as well as aquaculture and/or horticultural production systems

Assessment criteria:

- 2.1 Land use plans are implemented.
- 2.2 The use of natural resources in a sustainable way is planned.
- 2.3 Soil and water conservation processes is incorporated in a planning process.

- 3 Organise and plan infrastructure maintenance tasks related to the natural resource base of a farm, including the supervision of other workers.

Range: Routine tasks may include the repair of items such as roads, fencing, rainwater harvesting structures, and the equipment required to execute such tasks. It may also include the supervision of staff and the setting up of monitoring systems.

Assessment criteria:

- 3.1 The correct tools required to execute tasks and ensure that these are in good working order is identified.
- 3.2 The necessary repairs in order for infrastructure to be working efficiently is identified.
- 3.3 Clear instructions are given to supervised staff and workers' execution of instructions are monitored.
- 3.4 The basic requirements of a quality management system is explained.

- 4 Demonstrate the ability to monitor and maintain sustainability-based farm layout innovations that have been implemented in an agricultural environment as part of a land use plan.

Range: The maintenance and monitoring includes but is not restricted to soil erosion prevention measures, soil management strategies and rainwater harvesting and management innovations.

Assessment criteria:

- 4.1 Constructed infrastructure such as earth works and either repair or report faults is monitored, as appropriate.
- 4.2 Accurate record of information using, but not limited to, computers, pen and paper, peg board, etc., is compiled and entered in formats such as tables, graphs, simple markings, etc.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard relates to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 3 & 4.
2. **Teamwork:** relates to specific outcomes 1 & 3.
3. **Self-management:** relates to specific outcomes 1, 2, 3 & 4.
4. **Interpreting Information:** relates to specific outcomes 1, 2, 3 & 4.
5. **Communication:** relates to specific outcomes 1, 2 & 3.
6. **Use Science and Technology:** relates to specific outcomes 1, 3 & 4.
7. **The world as a set of related systems:** relates to specific outcomes 2, 3 & 4.
8. **Self-development:** relates to specific outcomes 1, 2, 3 & 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The different options applied in land use.

INTERMEDIATE KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The differentiations between high and low yield aspects of a landscape.
2. Methods of data gathering and information presentation (e.g. graphs, etc.).
3. The sustainable use of natural resources in an agricultural environment.
4. The causes and consequences of soil erosion.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.4.1**ANIMAL PRODUCTION**

TITLE	:	EXPLAIN FUNCTIONAL ANIMAL ANATOMY AND PHYSIOLOGY
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture: Farming
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to evaluate and manage animals according to specific criteria related to various anatomical systems. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and veterinary science.

Learners will gain specific knowledge and skills in animal anatomy and physiology and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 3: Explain Animal Anatomy and Physiology.
NQF 3: Identify, collect and analyse agricultural data.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and understand in detail the processes active within the various anatomical systems in animals.
 2. Identify and understand how anatomical systems within animals influence production of various animal products.
 3. Monitor and advise others on animal systems and production processes based on anatomical systems.
 4. Understand how animal health and nutrition affects animal anatomical systems.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and understand in detail the processes active within the various anatomical systems in animals.

Range: Anatomical systems include but are not limited to the following: external systems and covering, sensory systems, skeleton, musculature, nervous system, cardio-vascular system, digestive system, lymph, reproductive system and the endocrine and glandular systems as relevant to the context of application.

Assessment criteria:

- 1.1 Each process involved within various anatomical systems based on criteria are identified and described.
- 1.2 The interaction of anatomical systems are identified and described.
- 1.3 The biochemical substances involved with various anatomical systems and their origins are identified.
- 1.4 The purpose of biochemical substances involved with the various anatomical systems is explained.

2. Identify and understand how anatomical systems within animals influence production of various animal products

Range: Animal products include but are not limited to milk, eggs, meat, wool, blood, glandular secretions, ova, lymph, semen, sperm, cochineal, silk, faeces, bee products, meat as relevant to the context of application.

Assessment criteria:

- 2.1 Relevant anatomical system influence on the production of specific animal products are identified, understood and described.
 - 2.2 The anatomical origin of the various animal products are evaluated and described.
 - 2.3 The effect of the biochemical substances within anatomical systems of animals and their effects on animal production are described.
3. Monitor and advise others on animal systems and production processes based on anatomical systems.

Range: Methods of advising include but are not limited to verbal, presentations, and writing, the use of charts and diagrams and practical demonstrations.

Assessment criteria:

- 3.1 Animals are monitored and evaluated and further courses of action decide on.
 - 3.2 The results of the monitoring and evaluation processes are communicated and advice are given where necessary.
 - 3.3 Advice on animal systems and production processes based on anatomical systems within animals are given.
4. Understand how animal health and nutrition affects animal anatomical systems.

Assessment criteria:

- 4.1 The role of nutrition in terms of animal anatomy is explained.
- 4.2 The role of nutrition in terms of animal product production is explained.
- 4.3 The effects of malnutrition and other stress factors on animal anatomical systems is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 2 and 3.
2. **Teamwork:** Relates to outcomes 2 and 3.
3. **Self-Management:** Relates to all outcomes.
4. **Interpreting Information:** Relates to outcomes 2 and 3.
4. **Communication:** Relates to all outcomes.
5. **Use Science and Technology:** Relates to all outcomes.
6. **The world as a set of related systems:** Relates to all outcomes.
7. **Self-development:** Relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Dissection technique.
2. Presentation technique.
3. Scientific sampling technique.
4. Report writing skills.
5. Recording skills.
6. Detailed anatomical systems and the processes active within these.
7. The effect of the interaction of anatomical systems within animals on the production of various animal products.
8. Laws, regulations, rules and principles and codes of conduct pertaining to the evaluation, handling and dissection of animals.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 4.4.2**ANIMAL PRODUCTION**

TITLE	:	PLAN AND MAINTAIN BREEDING SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture: Farming
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

Qualifying learners are capable of understanding basic genetic principles, planning and maintaining breeding systems, methods and management of farm animals.

Learners will gain specific knowledge and skills in animal production field, specifically in the area of breeding management and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Apply advanced breeding practices for farm animals.

NQF 3: Explain the prevention and treatment of animal health.

NQF 4: Explain functional animal anatomy and physiology.

NQF 4: Apply procedures to manage damage control in animals and victims.

NQF 4: Explain animal classification and natural history.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Explain and understand the basic genetic principles pertaining to farm animals
 2. Plan and maintain breeding systems for farm animals
 3. Compare and understand the different breeding methods that can be applied to farm animals
 4. Explain and maintain a breeding management programme for farm animals
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Explain and understand the basic genetic principles pertaining to farm animals

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation.

Assessment criteria:

- 1.1 An understanding of the concept of heritability, repeatability and fertility of farm animals is explained.
- 1.2 The differences between genotype and phenotype is explained and understood.
- 1.3 The basic genetic principles relating to farm animals in the breeding programme are distinguished and explained.

2. Plan and maintain breeding systems for farm animals.

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation.

Assessment criteria:

- 2.1 The breeding system is interpreted and maintained as part of the production cycle.
- 2.2 The differences between breeding systems for farm animals is classified and explained.
- 2.3 Knowledge of breeding is integrated into a breeding system and breeding programme for farm animals.
- 2.4 The differences in breeding seasons amongst farm animals are explained.
- 2.5 The differences in breeding season with regard to planning of a breeding programme are explained.

3. Compare and understand the different breeding methods that can be applied to farm animals.

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation. Breeding methods include group breeding, hand breeding, artificial inseminations and other.

Assessment criteria:

- 3.1 The various types of breeding methods are compared and understood.
- 3.2 Applicability of breeding methods is explained and integrated into a breeding programme.
- 3.3 Advantages and disadvantages of a breeding method are identified and explained.

4. Explain and maintain a breeding management programme for farm animals

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of operation.

Assessment criteria:

- 4.1 Management of non-pregnant farm animals is explained according to nutrition, health, environment and other factors
- 4.2 The management of early pregnant farm animals is understood according to nutrition, health, environment and other factors.
- 4.3 Management of late pregnant farm animals is explained according to nutrition, health, environment and other factors.
- 4.4 The management of post partum farm animals is explained according to nutrition, health, environment and other factors.
- 4.5 Oestrus animals are separated out for breeding and also to monitor the overall fertility status of the herd/flock.
- 4.6 Management of the male animals for the breeding season is explained.
- 4.7 Pregnancy diagnosis methods are identified and described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

Teamwork: relates to all outcomes.

Interpreting Information: relates to all outcomes.

Use Technology and Science: relates to all outcomes.

Problem Solving: relates to outcomes 2 and 5.

Self-Management: relates to all outcomes.

Communication: relates to all outcomes.

Self-development: relates to all outcomes.

Inter relatedness: relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Farm practices
2. Basic planning principles
3. Basic knowledge of nutrition
4. Knowledge of genetics and reproduction
5. Application of breeding methods in a management programme
6. Management skills
7. Interpersonal skills
8. Purpose of this learning is to understand basic genetics and the integration of breeding methods into a breeding management programme
9. Communication and reporting skills
10. Understand the events, effects and implications of a breeding programme

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.4.3**ANIMAL PRODUCTION**

TITLE	:	APPLY PROCEDURES TO MANAGE DAMAGE CONTROL IN ANIMALS AND VICTIMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to understand practices that damage or can be harmful when managing animals – this must cover damage to themselves as well as to the animals. They must be able to evaluate, suggest and implement procedures to minimise risk to themselves and to the animals. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and animal husbandry as well as first aid and Para-medical support to the benefit of the industry. There will also be an understanding of safe containment procedures.

Learners will gain specific knowledge and skills in animal defensiveness and behaviour and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 3: Minimise risk in animal management.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Investigate animal defence mechanisms and evaluate related management procedures.
2. Communicate evaluations and findings concerning animal damage, to superiors and react with understanding when treating them.
3. Suggest alternative practices or quality control systems that will ensure safe handling of animals
4. Maintain systems implemented to ensure safe handling and containment procedures

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Investigate animal defence mechanisms and evaluate related management procedures.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 1.1 Data gleaned off animal behaviour is gathered and processed.
- 1.2 Areas of influence on animal behaviour that are relevant and explain the correct use of handling equipment are evaluated.
- 1.3 The attributes of the animal behaviour that relate to defensive tendencies are investigated and reported on.
- 1.4 Control systems and methodologies are investigated and evaluated.

2. Communicate evaluations and findings concerning animal damage, to superiors and react with understanding when treating them.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 2.1 The impact of various procedures, systems and methodologies on the treatment of animal damage are evaluated.

2.2 Relevant communication to demonstrate and motivate the implementation of changes in animal management to minimise animal defensiveness damage is developed and produced.

(Range: Communication includes but are not limited to reports, presentations, shows, demonstrations, visits, books and pamphlets).

2.3 Knowledge regarding the treatment of animals are applied.

3 Suggest alternative practices or control systems that will ensure safe management of animals.

Range: Control systems include but are not limited to work study, quality management systems such as TQM, QES, ISO certification, EUREPGAP, simple changes in procedure or settings in the system such as management or manipulation of the animal.

Assessment criteria:

3.1 Methods to manage of animals safely are applied.

3.2 Alternative practices or systems regarding the management of animals is suggested.

3.3 Cost/benefit ratios and risk management of implementing such alternatives or management systems are calculated and applied.

4 Maintain systems implemented to ensure safe handling and containment procedures.

Range: Quality systems include but are not limited to work study, quality management systems such as QES, ISO certification, EUREPGAP, manipulation of the animal.

Assessment criteria:

4.1 The animal management system is explained.

4.2 A basic knowledge of the containment systems is illustrated.

4.3 Safety in existing animal management/containment system is maintained.

4.4 Animal management/containment systems, ensuring animal safety is maintained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to all outcomes.
2. **Teamwork:** relates to all outcomes.
3. **Self-Organisation and Management:** relates to all outcomes.

4. **Communication:** relates to all outcomes.
5. **Personal Development:** relates to all outcomes.
6. **Interpretation of information:** relates to all outcomes.
7. **The world as a set:** relates to all outcomes.
8. **Science and technology:** relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animal.
2. Comprehension, identification and understanding of animal management/containment systems.
3. Sensory evaluation of animal safety.
4. Observation of animal behaviour and the development of effective management systems.
5. Evaluation of data related to animal safe handling.
6. The purpose of learning about animal management.
7. Basic agricultural animal management.
8. Basic presentation skills.
9. Observation and maintenance of animal management systems.

SUPPLEMENTARY INFORMATION

NOTES

END-

LEVEL 4.4.4**ANIMAL PRODUCTION**

TITLE	:	EXPLAIN ANIMAL CLASSIFICATION AND NATURAL HISTORY
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture: Farming
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to understand the historic and geographic origin and distribution of the specific animal species, its position within the standard classification structure of the animal kingdom, its historic, traditional and current use by man and its basic biology that illuminates the above. In addition they will be well positioned to extend their learning and practice into other areas of agriculture, animal husbandry and veterinary science.

Learners will gain specific knowledge and skills in animal natural history and classification and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

No learning is assumed.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Describe the historical origin of specific animal species, based on evidence.
2. Describe the geographic distribution of the specific animal based on its preferences.
3. Describe the specific animal species' position within the classification system of the animal kingdom.
4. Describe the historic, traditional and current use of the animal by man.
5. Describe the basic biological concepts that will illuminate the geographical, traditional and historical distribution and use of the animal.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Describe the historical origin of the specific animal species, based on evidence

Range: Animals include but are not limited to mammals, reptiles, birds, amphibians, crustaceans, molluscs, fish and insects

Assessment criteria:

- 1.1 The historic origin of the animal species is described.
- 1.2 The geographic origin of the animal species is described.
- 1.3 Conclusive evidence to support the hypothesis of the animal's historical and geographical origin is related and / or provided.

2. Describe the geographical distribution of the specific animal species, based on its preferences.

Range: Animals include but are not limited to mammals, reptiles, birds, amphibians, crustaceans, molluscs, fish and insects.

Assessment criteria:

- 2.1 The basic environmental preferences of the animal species, based on its biology described.
- 2.2 The current geographical distribution of the specific animal species. Explain and is described.
- 2.3 The movement of the specific animal species, identifying natural migrations and movement under human control or due to human causes is explained.

3. Describe the specific animal species' position within the classification system of the animal kingdom.

Range: Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects

Assessment criteria:

- 3.1 The standard classification nomenclature of the animal kingdom is explained and described.
- 3.2 The specific animal species' position within the animal kingdom, using standard classification nomenclature is explained and described.
- 3.3 The morphology and / or attributes of the specific animal that places it within the specific niche within the standard animal category nomenclature is described.

4. Describe the historic, traditional and current use of the specific animal species by man

Range: Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects

Assessment criteria:

- 4.1 The historic, traditional and current use of the animal by man is described and explained.

(Range: Use of animals by man include but are not limited to the use of their products for food and feed, medication or religious reasons, their labour in the sense that their senses (smell, hearing, taste and sight) and their physical strength (for draught) have been used to benefit man, for performance, or use in warfare and for humanitarian use, for use as guides and supports for disabled, for the use of their lives in the place of man in various applications because of their attributes, for their ability to consume or convert various unwanted substances, for their ability to warn and defend their charges of dangers)

- 4.2 The use of the specific animal species by man in historic, traditional and current terms is explained.
- 4.3 The various products produced by the specific animals used by man and how they could have changed over time is described.

5. Describe the basic biological and behavioural concepts that will illuminate the geographical, traditional and historical distribution and use of the animal.

Range: Biology of the animal includes but is not limited to facets of the animal that lend the animal to the specific task(s) or products that it is used for by man.

Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects.

Assessment criteria:

- 5.1 A detailed description of the animal species' biological attributes that illuminate its use for man is given.
- 5.2 A detailed description of the animal species' behavioural patterns that illuminate its use for man is given.
- 5.3 A detailed description of the possible changes in the animal's behaviour over time, which enables it to be utilised by man or as a result of its use by man given.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to outcomes 2, 3, 4 and 5.
2. **Self-Organisation and Management:** relates to outcome 4.
3. **Communication:** relates to outcomes 1 to 5.
4. **Personal Development:** relates to outcomes 1 to 5.
5. **Interpretation of information:** relates to outcomes 1 to 5.
6. **The world as a set:** relates to outcomes 1 to 5.
7. **Science and technology:** relates to outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic comprehension and understanding of the specific animal species.
2. Animal classification and nomenclature.
3. Global geography.
4. Natural history.
5. Environmental awareness.
6. Animal humanitarianism.
7. The purpose of this unit standard.
8. The purposes and advantages of animals to man.
9. Presentation skills.
10. Sensory evaluation of animals.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 4.4.5**ANIMAL PRODUCTION**

TITLE	:	EXPLAIN INTERMEDIATE ANIMAL NUTRITION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner must understand and apply the scientific and technical principles of animal nutrition, feed, technology and feeding management. In addition they will be well positioned to extend their learning and practice into other areas of agriculture.

Learners will gain specific knowledge and skills in animal feeding and nutrition and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 3: Explain elementary Animal Nutrition.

NQF 4: Explain Functional animal Anatomy and Physiology.

NQF 3: Maintain water quality parameters.

NQF 4: Plan and maintain environmentally sound agricultural processes.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Describe the composition and functions of specific nutrient components and feed ingredients.
 2. Interpret the nutrient requirements of different animal species and categories.
 3. Perform the calibration and adjustment of feed manufacturing and processing equipment.
 4. Explain the principles of feed preservation.
 5. Apply quality control measures that affect feeds.
 6. Apply the relevant standards of different purchased feed ingredients and complete feeds.
 7. Interpret the effects of feed evaluation results towards feeding management decisions and future food selection.
 8. Apply feed flow planning principles.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Describe the composition and functions of specific nutrient components and feed ingredients.

Range: Nutrient components include but are not limited to amino acids, fatty acids, sugars, fibres, vitamins and minerals.

Assessment criteria:

- 1.1 The key chemical features of nutrients are compared.
- 1.2 The functions of nutrients are explained.
- 1.3 The compositions and functions of various feed ingredient are compared.
- 1.4 Nutrient toxicity are explained and identified.

2. Interpret the nutrient requirements of different animal species and categories.

Range: This identification includes, but is not limited to fish, birds, mammals, insects, crustaceans, reptiles and amphibians.

Assessment criteria

- 2.1 Specific requirements for nutrients of different species and/or production categories, maintenance or stimulation are distinguished between.
- 2.2 Nutrient imbalance signs are recognised.

2.3 Animal feed tables are interpreted.

3. Perform the calibration and adjustment of feed manufacturing and processing equipment.

Range: This identification includes, but is not limited to fish, birds, mammals, insects, crustaceans, reptiles and amphibians as relevant to the context of application.

Assessment criteria:

3.1 Appropriate adjustments on feed equipment for mixing/manufacturing of relevant feeds/mixes are performed.

3.2 Complex adjustments of feed equipment for maintenance of feed quality are calibrated.

3.3 Feed manufacturing and processing plants, equipment and machinery are operated.

3.4 Feed processing or manufacturing systems are recommended.

4. Explain the principles of feed preservation.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements.

Assessment criteria:

4.1 All the various influences on effective feed preservation or spoilage are identified and explained.

(**Range:** influences include but are not limited to weatherproofing, pest-control, fire prevention and fire protection procedures, vandal proofing, preservation (freezing, cooling, dehydration, chemical or bacterial preservation), escape proofing and theft proofing).

4.2 Factors affecting feed quality are identified.

4.3 Various feed preserving techniques are applied and implemented.

5. Apply quality control measures that affect feeds.

Range: All appropriate quality control measures

Assessment criteria:

5.1 Sensory and chemical quality characteristics of preserved feed are explained.

5.2 The ability to create on farm feed quality standards for preserved feed are demonstrated.

5.3 Animal feeds are sampled and evaluated.

5.4 Spoilage in animal feeds is identified.

5.5 Feed quality maintenance systems are proposed.

6. Apply the relevant standards of different purchased feed ingredients and complete feeds.

Range: All relevant feed standards.

Assessment criteria:

- 6.1 The ability to compare the quality of feed ingredients and complete feeds with standards described by the Farm Feed Act (Act 36 of 1947).
- 6.2 The ability to develop on farm nutrient variability standards.

7. Interpret the effects of feed evaluation results towards feeding management decisions and future food selection.

Range: All relevant feed evaluation data e.g. feed conversion ratios, feed intake values and growth rate values, nutrient composition of feeds and feed ingredients.

Assessment criteria:

- 7.1 The ability to understand the concepts of the various applicable data and information, as well as the factors that may influence it.
- 7.2 The ability to interpret feed evaluation results in terms of future feed selection.
- 7.3 The ability to develop on farm feed evaluation procedures and standards.

8. Apply feed flow planning principles.

Range: All relevant fodder flow planning principles including natural vegetation, pastures and preserved fodder.

Assessment criteria:

- 8.1 The ability to distinguish seasonal productivity of different feed sources.
- 8.2 Feed utilisation and conversion of different feed types are compared and evaluated.
- 8.3 The ability to interpret feed flow programmes to meet animal stimulation, production and maintenance requirements.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** relates to all outcomes.
2. **Interpreting Information:** relates to all outcomes.

3. **Use Technology and Science:** relates to all outcomes.
4. **Problem Solving:** relates to outcomes 2 and 3.
5. **Self-Management:** relates to all outcomes.
6. **Communication:** relates to all outcomes.
7. **Self-development:** relates to all outcomes.
8. **Inter relatedness:** relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Intermediate comprehension and understanding the roles of specific nutrients, ingredients and feed components.
2. Intermediate comprehension and understanding of nutrient requirement of different animal species and categories.
3. The understanding and interpretation of observed and measured quality characteristics and standards.
4. Interpretation and application of on farm feed performance results.
5. Develop communication skills – presentation of information.
6. Develop interpersonal skills and supervision responsibility.
7. Understanding of concepts and interpretation of carrying capacity, feed supply, fodder flow planning and overall feed flow planning and external influences on feed supply.
8. Understanding of feed processing.
9. Understanding of appropriate feed regulations (Act 36 of 1947) .

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 4.4.6**ANIMAL PRODUCTION**

TITLE	:	IMPLEMENT ANIMAL HEALTH AND BIO-SECURITY PROGRAMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to supervise repetitive and basic procedures and determine correct dosages, calibrate instruments and implement health and Bio-security programming and diagnose common and general diseases in animals. In addition they will be well positioned to and their learning and practice into other areas of agricultural animal production and veterinary science.

Learners will gain specific knowledge and skills in animal health and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Explain the prevention and treatment of animal diseases.

- NQF 4: Explain functional animal anatomy and physiology.
NQF 4: Explain intermediate animal nutrition.
NQF 4: Apply procedures to manage damage control in animals and victims.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Supervise animal disease prevention and ensure correct practices are in place.
 2. Ensure that basic clinical examination is done correctly.
 3. Ensure correct dosage rates and calibrate and use instruments correctly
 4. Ensure that vaccination and treatment are done correctly
 5. Ensure that pre-planned programmes are carried out.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Supervise animal disease prevention and ensure correct practices are in place.
Range: Basic procedures include but are not limited to temperature determination, ear clipping, dehorning, vaccination, dipping, dosing; animal identification and branding, tattooing, etc.

Assessment criteria:

- 1.1 Worker carrying out basic procedures is observed.
- 1.2 Incorrect methods are recognised and rectified.
- 1.3 Additional practices are taught where necessary.

2. Ensure that basic clinical examination is done correctly.

Range: Physical examination includes but is not limited to taking of temperature, observation and sampling of discharges, evaluating of faeces and body condition

Assessment criteria:

- 2.1 Basic physical examinations of animals are carried out.
- 2.2 The ability to treat minor ailments is demonstrated.
- 2.3 More severe or unknown problems are referred to superior.
- 2.4 All treatments are recorded.

3. Ensure correct dosage rates and calibrate and use instruments correctly.

Range: Instruments include but are not necessary limited to branding or tattooing equipment, thermometer, tongs, injection needles, etc.

Assessment criteria:

- 3.1 The ability to check instruments for defects is demonstrated.
 - 3.2 The ability to calibrate instruments is demonstrated.
(*Range:* Instruments include but are not limited to syringes, dosing guns).
 - 3.3 The ability to calculate correct dosages according to dosage tables is demonstrated.
(*Range:* Correct dosages include but are not limited to vaccines, dipping and dosing chemicals).
 - 3.4 The ability to use the correct amount of substances is demonstrated.
 - 3.5 The ability to use applicators correctly is demonstrated.
4. Ensure that vaccination and treatment are done correctly.

Assessment criteria:

- 4.1 The appropriate hygiene procedure is demonstrated and explained.
 - 4.2 The ability to use instruments in correct manners is demonstrated.
 - 4.3 The correct cleaning and disposal methods are explained.
 - 4.4 The correct cleaning, packing and storage of re-useable instruments are demonstrated.
5. Ensure that pre-planned programmes are carried out.
Range: Programmes include but are not limited to vaccination, dipping, dosing regimes.

Assessment criteria:

- 5.1 The importance of regular meetings to discuss programmes with supervisor is explained.
- 5.2 The importance of timeous implementation of programme is explained.
- 5.3 The importance of record keeping is explained and methods of record keeping are demonstrated.
- 5.4 The importance of communicating all deviations to the supervisor is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** relates to all outcomes.
2. **Teamwork:** relates to all outcomes.
3. **Self-Management:** relates to all outcomes.
4. **Communication:** relates to all. outcomes.
5. **Interpreting information:** relates to outcomes 2 and 4.

6. **Science and Technology;** relates to outcomes 2 and 4.
7. **The world as related systems:** relates to outcome 4.
8. **Self-development:** relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and functions of relevant equipment, procedures, implements and instruments related to the study of animal health.
2. The sensory cues and symptoms involved in the execution of pre-planned animal health programmes.
3. The purpose of the implementation of procedures and pre-planned animal health programmes.
4. The implication of the correct and incorrect execution of the procedures under pre-planned programmes.
5. Implemented procedures.
6. All rules and codes of conduct relevant to the procedures implemented.
7. The interrelations between the observations, procedures and the treatment of disease and other animal health issues.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.4.7**ANIMAL PRODUCTION****TITLE****:MANAGE THE QUALITY OF THE HARVESTING OF ANIMAL PRODUCTS**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

4

CREDIT

:

3

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

The learner achieving this unit standard will be able to understand practices that could damage or otherwise be harmful to animal products to be harvested and will be able to evaluate, suggest and maintain alternative practices and systems that will retain animal product integrity and quality. In addition they will be well positioned to extend their learning and practice into other areas of animal husbandry and agriculture.

Learners will gain specific knowledge and skills in the harvesting of animal products and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 3: Explain the harvesting of animal products.

NQF 4: Apply procedures to manage damage control in animals and victims.

NQF 4: Explain functional animal anatomy and physiology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Investigate animal product processing systems with regard to quality issues.
2. Communicate evaluations and findings regarding processing systems and the quality of harvested animal products processed by such systems to superiors.
3. Suggest alternative practices or quality control systems that will ensure retention of product quality.
4. Maintain systems implemented to ensure animal product quality.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Investigate animal product processing systems with regard to quality issues

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 1.1 Data gleaned off animal product processing systems related to product quality is gathered and processed.
- 1.2 The attributes of the animal product in process that relate to the product's quality are investigated and reported on.
- 1.3 Areas of influence on animal products where quality may be impaired including equipment, implements, human intervention, input or the process are evaluated.
- 1.4 Quality control systems and methodologies are investigated and evaluated.

2. Communicate evaluations and findings regarding processing systems and the quality of harvested animal products processed by such systems to superiors

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as relevant to the context of application.

Assessment criteria:

- 2.1 The impact of various procedures, systems and methodologies on the quality of animal products Evaluate.
- 2.2 Cost/benefit analysis regarding the effect of such processes and procedures are developed.
- 2.3 Relevant communication to demonstrate and motivate the implementation of changes in the processing of animal products is developed and produced.
(Range: Communication includes but are not limited to reports, presentations, shows, demonstrations, visits, books and pamphlets).
- 2.4 Knowledge regarding quality in the processing of animal products is applied.

- 3 Suggest alternative practices or quality control systems that will ensure retention of product quality

Range: Quality systems include but are not limited to work study, quality management systems such as TQM, QES, ISO certification, EUREPGAP, HACCP, simple changes in procedure or settings in the system such as temperature management or manipulation of the animal or the product as relevant to the context of application.

Assessment criteria:

- 3.1 Knowledge and experience in the processing of animal products are exhibited.
- 3.2 Basic knowledge of quality management systems is demonstrated.
- 3.3 Suggested alternative practices or systems regarding the management of quality of animal products are communicated.
- 3.4 The cost/benefit ratios of implementing such alternatives or quality management systems are described and explained.

- 4 Maintain systems implemented to ensure animal product quality.

Range: Quality systems include but are not limited to work study, quality management systems such as QES, ISO certification, EUREPGAP, simple changes in procedure or settings in the system such as temperature management or manipulation of the animal or the product as relevant to the context of application.

Assessment criteria:

- 4.1 A complete knowledge of the animal product harvesting and processing system is demonstrated.
- 4.2 Quality in existing implemented animal harvesting systems are maintained.
- 4.3 Animal harvesting and processing systems, ensuring animal product quality and integrity are maintained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to outcomes 1 to 4.
2. **Teamwork:** relates to outcomes 1 to 4.
3. **Self-Organisation and Management:** relates to outcomes 1 to 4.
4. **Communication:** relates to outcomes 1 to 4.
5. **Personal Development:** relates to outcomes 1 to 4.
6. **Interpretation of information:** relates to outcomes 1 to 4.
7. **The world as a set:** relates to outcomes 1 to 4.
8. **Science and technology:** relates to outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animal.
2. Comprehension, identification and understanding of the product.
3. Sensory evaluation of animal products and their quality.
4. Observation of animal product processing systems.
5. Evaluation of data related to animal product quality and integrity.
6. The purpose of learning about animal products, their harvesting and processing.
7. Basic agricultural production.
8. Basic presentation skills.
9. Quality management systems.
10. Basic record keeping.
11. Observation and maintenance of processing systems.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 4.5.1**PLANT PRODUCTION**

TITLE	:	DEMONSTRATE A BASIC UNDERSTANDING OF THE PHYSIOLOGICAL PROCESSES IN PLANT GROWTH AND DEVELOPMENT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner will be able to identify the different physiological processes involved in growth and development of a plant.

Learners will gain specific knowledge and skills in plant physiology and anatomy and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Demonstrate a basic understanding of the physiological functioning of the anatomical structures of the plant

NQF 3: Incorporate basic concepts sustainable farming systems into practical farm activities.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of the processes involved in cell division with relation to growth and development of the plant.
 2. Describe the process of transpiration and its role in water uptake by a plant (Range: Water uptake refers to but it is not limited to the process of osmosis).
 3. Describe the process of respiration in relation to gaseous exchange in the plant.
 4. Demonstrate an understanding of the process of photosynthesis.
 5. Demonstrate an understanding of the maturity and ripening of fruit.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of the processes involved in cell division with relation to growth and development of the plant.
Range: Cell division refers to the process of mitosis. Growth and development refers to the development of secondary vascular bundles.

Assessment criteria:

- 1.1 The process of mitosis is described.
(Range: Refers to the process of cell division).
- 1.2 Secondary growth in plants with reference to the development of secondary vascular tissue and growth of a plant is explained.
(Range: Secondary vascular tissue refers to secondary xylem and phloem development)
- 1.3 Cell division with reference to a) germination, b) pollination, and c) fertilization is explained.

2. Describe the process of transpiration and its role in water uptake by a plant

Range: Water uptake refers to but it is not limited to the process of osmosis and translocation.

Assessment criteria:

- 2.1 The concept of osmosis and how it occurs is explained.
- 2.2 Osmosis is illustrated.
- 2.3 The movement of water from the root to the leaves is explained and illustrated.
- 2.4 The role of the stomata with reference to transpiration is explained.
- 2.5 The role of transpiration in relation to water use efficiency of the plant is explained.
- 2.6 The concept of wilting is explained.

3. Describe the process of respiration in relation to gaseous exchange in the plant.

Range: Gaseous exchange refers to but is not limited to osmosis and respiration

Assessment criteria:

- 3.1 The transfer of gases between the plant and its external environment is described.
 - 3.2 The process of respiration and when it occurs in plants is explained.
 - 3.3 The process of respiration in relation to climacteric and non-climacteric fruit is described.
 - 3.4 The influences of respiration on the ripening of fruit are discussed.
4. Demonstrate an understanding of the process of photosynthesis.

Range: Photosynthesis refers to the process that occurs in green plants. Photosynthesis is the process by which complex molecules are produced from plant nutrients, water and gases through a physiological process

Assessment criteria:

- 4.1 The effect environmental factors have on the process of photosynthesis is demonstrated and explained.
 - 4.2 The light phase of photosynthesis is discussed and described.
 - 4.3 The dark phase of photosynthesis is discussed and described.
5. Demonstrate an understanding of the maturity and ripening of fruit.

Range: Maturity and ripening refers to but is not limited to cell division, respiration, etc.

Assessment criteria:

- 5.1 The process of cell division and differentiation in fruit is explained.
- 5.2 The role of ethylene in fruit maturity and ripening is explained.
- 5.3 The function of ethylene in the manipulation of fruit ripening and harvesting is explained.
- 5.4 The storage of fruit is explained with reference to ethylene and atmospheric factors.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 5.
2. **Teamwork:** Relates to outcomes 1 to 5.
3. **Self-Management:** Relates to outcomes 1 to 5.

4. **Interpreting Information:** Relates to outcomes 1 to 5.
5. **Communication:** Relates to outcomes 1 to 5.
6. **Use Science and Technology:** Relates to outcomes 1 to 5.
7. **The world as a set of related systems:** Relates to outcomes 1 to 5.
8. **Self-development:** Relates to outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Transpiration, respiration and photosynthesis.
2. Gaseous exchange, osmosis and translocation.
3. Cell division.
4. Laws of nature.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.5.2**PLANT PRODUCTION**

TITLE	:	DEVELOP A HARVESTING PLAN FOR THE SPECIFIC AGRICULTURAL CROP
SAQA	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	AGRICULTURE AND CONSERVATION
SUB-FIELD	:	PRIMARY AGRICULTURE
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to develop, implement and supervise different plans impacting on the harvesting of crops according to the necessary procedures making use of harvesting tools as described in the harvest plan.

Learners will gain specific knowledge and skills in harvesting processes and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Monitor and co-ordinate the harvesting of agricultural crops.

NQF 3: Supervise the collection of agricultural data.

NQF 3: Explain the planning and scheduling of tasks in a production environment.

NQF 4: Implement a food safety and quality management system in the agricultural supply chain.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify, plan and obtain tools / equipment for the harvesting of the crop of the agricultural enterprise.
2. Develop a maturity-indexing plan and interpret the data.
3. Develop the harvesting plan for the crops according to the maturity indexing data.
4. Develop health, hygiene and safety plans for the harvesting operation and moving the product to the processing point.
5. Develop the plan for the disposal of waste as prescribe by the different rules and regulations and adhering to company policy.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify, plan and obtain tools / equipment for the harvesting of the crop of the agricultural enterprise.

Range: Harvesting methods according to specific production context include, but are not limited to harvesting by hand, machine harvesting, etc. Planning and obtaining the tools include but are not limited to hiring of and collecting large harvesting equipment where appropriate.

Assessment criteria:

- 1.1 Plans are developed for the use of harvesting equipment to ensure a smooth and problem free harvesting period.
(Range: Tools, according to specific production context include, but are not limited to hands, trays, crates, picking bags, shears, ladders, etc.)
 - 1.2 Equipment is obtained timely and checked to ensure that it is in good working order.
 - 1.3 The use of the equipment is demonstrated to ensure that all safety precautions are implemented.
 - 1.4 All the factors and processes that need to be considered when developing a plan for the use of specific equipment are explained.
 - 1.5 Such a plan is illustrated and what record keeping is involved is explained.
2. Develop a maturity-indexing plan and interpret the data.

Range: Maturity indexing may include, but is not limited to, withholding period, stage of growth of crop, sugar levels, size, color, texture, ratios of one chemical versus another, level of ethylene production, etc.

Assessment criteria:

- 2.1 The importance of a maturity-indexing plan is explained.
- 2.2 The factors that would have an influence on the maturity of the crop of the specific agricultural enterprise are identified and discussed.
- 2.3 The influence of these factors on the maturity of the crop is explained.
- 2.4 The maturity indexing plan and how the data influences the harvesting plan is illustrated and described.
- 2.5 Samples are taken and processed.
- 2.6 The maturity indexing plan information is recorded and how this could fit in with tracing and tracking of certain post-harvest problems maturity.
3. Develop the harvesting plan for the crops according to the maturity indexing data.

Range: Harvesting plan could include but is not limited to harvesting method, time of day to harvest, date for harvesting to start, which area to start with, sugar levels, starch levels, colour etc.

Assessment criteria:

- 3.1 the different factors that need to be considered when developing a harvesting plan Explain.
(Range: factors include but are not limited to weather, withholding periods, sugar levels, number of people needed etc.)
- 3.2 The influence of the type of market on the harvesting plan is described.
- 3.3 The visual maturity aspects of the harvesting plan are conveyed to the workers to ensure that the crop is harvested according to the information.
- 3.4 A harvesting plan with the different aspects fit into each other, is developed.
- 3.5 The process (harvesting plan) is managed and records are kept and processed.
- 3.6 The harvesting plan incorporates the principles of good agricultural practices (GAP).
4. Develop health, hygiene and safety plans, for the harvesting operation and moving the product to the processing point.

Range: Health hygiene and safety plan includes but is not limited to ensuring that specific health, hygiene and safety procedures are complied with as stipulated by the OHSA, GAP and others.

Assessment criteria:

- 4.1 The health, hygiene and safety plan and the regulations of the company and how this relates to the different rules and regulations of the market are described.
- 4.2 The plan is implemented to the benefit of the worker and the company.
- 4.3 Health, hygiene and safety checks are included in the plan to ensure that both the worker and product is protected.
- 4.4 Access to facilities such as toilets, wash basins etc are included in the plan

- 4.5 The plan and supporting record keeping processes are implemented.
5. Develop the plan for the disposal of waste as prescribed by the different rules and regulations and adhering to company policy.

Range: Waste includes but is not limited to bio-degradable materials (including parts of plants, fruit, flowers, etc.) and non bio-degradable materials (plastics, glass, metals, etc.) A waste collection and disposal plan could include but is not limited to evaluating what can be recycled, how and where and what must be dumped, where and how.

Assessment criteria:

- 5.1 A waste audit is performed to identify all the possible waste produced by the harvesting process.
 - 5.2 Waste is classified and collected accordingly.
 - 5.3 The plan includes the re-cycling of most of the waste
 - 5.4 Waste is disposed of to adhere to the requirements of the different regulations, such as EUREPGAP and GAP.
 - 5.5 Records are kept and what information is recorded and why.
6. Develop a plan for the proper care and maintenance of the equipment used.

Range:

Care and maintenance include but are not limited to the cleaning, repairing sanitizing and storage of the equipment etc according to GAP.

Assessment criteria:

- 5.1 The elements the plan needs to consider are described.
- 5.2 The different procedures that need to be implemented to comply with GAP is explained.
- 5.3 The maintenance plan for all equipment used as a basic component of the care and maintenance plan is developed.
- 5.4 The plan is managed and supporting procedures are implemented to the maintenance plan.
- 5.5 Irregularities are dealt with and recorded.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** Relates to all specific outcomes.
2. **Self-development:** Relates to all specific outcomes.

3. **Communication:** Relates to all specific outcomes.
4. **Information interpretation:** Relates to all specific outcomes.
5. **Inter-relatedness of Systems:** Relates to all specific outcomes.
6. **Problem Solving:** Relates to all specific outcomes.
7. **Self Management:** Relates to all specific outcomes.
8. **Use science and technology:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Principles of harvesting a crop are understood.
2. Names and functions of tools and materials.
3. Safe handling procedures of tools and materials.
1. Different harvesting methods are understood.
2. Elements of maturity indexing are understood.
5. Plant physiology and anatomy.
6. Management of waste and pollution.
3. The occupational health and safety act is understood and can be implemented.
4. Regulatory procedures of the market are understood and can be managed.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.5.3**PLANT PRODUCTION****TITLE:****SCHEDULE THE OPERATION AND
MAINTENANCE OF IRRIGATION SYSTEMS**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

4

CREDIT

:

3

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A learner achieving this unit standard will be able to effectively supervise the installation, operation and maintenance of irrigation systems of agricultural crops.

Learners will gain specific knowledge and skills in irrigation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Monitor The Operation And Maintenance Of Irrigation Systems.

NQF 4: Establish a plan for the monitoring, safe use and maintenance of equipment, implements, technology and infrastructure.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Install an irrigation system.
2. Maintain and evaluate an irrigation system.
3. Efficiently operate an irrigation system.
4. Collate data pertaining to the long-term efficient management of an irrigation system.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Install an irrigation system.

Range: Includes but is not limited to plan interpretation, site preparation, survey, pipe/valve/filter requirements, etc.

Assessment criteria:

- 1.1 Irrigation design plan is interpreted.
- 1.2 Irrigation system is pegged out according to specification.
- 1.3 Conveyance system trenches are dug according to specifications.
- 1.4 Irrigation pipes, valves, filters, etc. are installed according to specifications.
- 1.5 Irrigation system is tested and evaluated according to standard procedures.
- 1.6 Trenches are back-filled according to specification.

- 2 Maintain and evaluate an irrigation system.

Range: ncludes but is not limited to regular maintenance and evaluation of the functioning of an irrigation system.

Assessment criteria:

- 2.1 Pre-season maintenance is carried out.
(Range: Flush system, repairing/replacing worn/broken pipes/valves/sprinklers, etc.)
- 2.2 In-season maintenance is carried out.
(Range: Daily, weekly, monthly according to standard procedures such as CU tests, pressure tests, etc.)
- 2.3 Post-season maintenance is carried out.
(Range: Pumps, filters, flushing, etc.)
- 2.4 Regular evaluation of the functioning of an irrigation system as per design specifications.

(Range: Functioning of pumps, motors, pressure, delivery rate, water distribution efficiency, etc. evaluated against design specifications.)

3 Efficiently operate an irrigation system.

Range: Includes but is not limited to irrigating according to schedule, regular in-field operational checks, etc.

Assessment criteria:

3.1 Schedule is given to and discussed with the field/orchard operator.

3.2 Irrigation is monitored according to irrigation schedule.

(Range: Tensiometers, soil samples, Neutron probe, scheduling programmes, stand time, flow rate, etc.)

3.3 Irrigation effectiveness is determined.

(Range: CU tests, water balance determination, depth of irrigation, etc.)

4 Collate data pertaining to the long-term efficient management of an irrigation system.

Range: Includes but is not limited to general record keeping of all irrigation practices in order to be able to, in time, allow for scientific appraisal of and improvement of all relevant practices.

Assessment criteria

4.1 Record all relevant water use/crop yield/climatic data for later evaluation and adaptation (of, for instance, scheduling practices, if required).

4.2 Recording of all relevant data in a recognised electronic format.

(Range: Linked spread sheets, tables, etc.)

4.3 Regular updating of all records to comply with new generation electronic hardware/software.

4.4 On-going, low-key, checking/evaluation of all data to ensure validity of, especially, electronically collated data.

(Range: Instrument drift, calibration drift, etc.)

4.5 Preparation of reports for supervisor evaluation.

(Range: Regular overview reports, reports pertaining to deviations in data (i.e. water quality), recorder problems, etc.)

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Teamwork** relates to specific outcomes 1-4.
3. **Self-organisation and management** relates to specific outcomes 1-4.
4. **Information evaluation** relates to specific outcomes 1-4.
5. **Communication** relates to specific outcomes 1-4.
6. **Use science and technology** relates to specific outcomes 1-4.

7. **Inter-relatedness of systems** relates to specific outcomes 1-4.
8. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Appropriate Laws and Regulation pertaining to agricultural water use, environmental safety, etc.
2. Elementary hydraulics.
3. Principles of irrigation, crop water requirements, soil water holding capacity, etc.
4. Principles of irrigation system design.
5. Principles of irrigation scheduling.
6. Use of computer based irrigation scheduling programmes.
7. Principles of human and resource management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.5.4**PLANT PRODUCTION**

TITLE	:	MANAGE PLANT MANIPULATION METHODS OF AN AGRICULTURAL CROP
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to implement a plant manipulation management plan using a broad range of techniques. Learners achieving this unit standard will be able to apply their skills and capacity in a variety of production environments and be able to contribute towards to overall productivity of a production enterprise by maximizing growth and yield and maintaining high standards of practice.

Learners will gain specific knowledge and skills in plant manipulation processes and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Monitor and supervise plant manipulation methods of an agricultural crop plant

NQF 4: Demonstrate a basic understanding of the physiological processes in plant growth and development

NQF 3: Explain the planning and scheduling of tasks in a production environment

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Interpret a plant manipulation management plan.
2. Create and implement a plant manipulation schedule.
3. Supervise the implementation of a plant manipulation schedule.
4. Maintain appropriate hygiene and health standards.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

1. Interpret a plant manipulation management plan.

Range: Manipulation methods include, but are not limited to framework development, flower and fruit manipulation and pruning, etc.

Tools include, but are not limited to pruning shears, tie-back material, trellising and spraying equipment etc.

Assessment criteria:

- 1.1 Problems in the use of tools, material appropriate to pre-determined manipulation method on appropriate crop independently are managed and solved.
 - 1.2 Plant growth is at the correct growth stage according to pre-determined manipulation method under a variety of familiar and unfamiliar contexts.
 - 1.3 The caring and maintaining of equipment is managed.
2. Create and implement a plant manipulation schedule.

Range: Trellising methods include, but are not limited to Central leader system, Tatura system, two wire system, slanted cap, factory-cap, Façade system, etc.

Assessment criteria:

- 2.1 The manipulation and trellising system is erected appropriate to the crop according to a considerable choice of procedures.

- 2.2 Problems related to the manipulation and framework development of the plant are solved according to a considerable range of procedures.
- 2.3. The manipulation of, growing points and bearing units appropriate to the crop and the manipulation method under familiar and unfamiliar conditions is managed.
- 2.4. The shaping of the plant, under a wide range of conditions, appropriate to the crop and trellising system is managed.
3. Supervise the implementation of a plant manipulation schedule.

Range: Flower and fruit manipulation principles include, but are not limited to temperature, daylight length, Bud dormancy breakers, thinning, fruit enlargement, ripening, and preparation quality improvement methods etc – Chemically and physically.

Assessment criteria:

- 3.1 The fruit and flower manipulation is managed.
- 3.2 A spraying program for chemically flower/fruit manipulation is established.
- 3.3 A program for the physical manipulation on the fruit and flowers is established.
Range: Physical manipulation includes, but is not limited to thinning, shouldering, brushing, shortening, etc.
4. Maintain appropriate hygiene and health standards.

Range: Pruning includes, but is not limited to summer and winter pruning, canopy management etc. appropriate to the crop.

Assessment criteria:

- 4.1 The pruning of plants and the removal of unwanted growth under a variety of familiar and unfamiliar contexts are ensured.
- 4.2 The vegetative manipulation and pruning actions are ensured.
Range: Vegetative manipulation includes but is not limited to winter pruning, summer pruning, canopy management, trellising of shoots, etc.
- 4.3 The vegetative manipulation program and actions are established and ensured.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 4.

2. **Teamwork:** Relates to outcomes1 to 4.
3. **Self-Management:** Relates to outcomes1 to 4.
4. **Interpreting Information:** Relates to outcomes1 to 4.
5. **Communication:** Relates to outcomes1 to 4.
6. **Use Science and Technology:** Relates to outcomes1 to 4.
7. **The world as a set of related systems:** Relates to outcomes1 to 4.
8. **Self-development:** Relates to outcomes1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Tools for manipulation of plants.
2. Trellising methods.
3. Flower manipulation and fruit manipulation methods.
4. Pruning methods.
5. The principles of manipulation of a plant.
6. Names and functions of tools and materials.
7. Safe handling procedures of tools and material.
8. Maintaining hygienic procedures of tools and material as to prevent spreading of diseases.
9. Plant physiology and anatomy.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.5.5**PLANT PRODUCTION**

TITLE : **APPLY EFFECTIVE AND RESPONSIBLE INTEGRATED PEST, DISEASE AND WEED CONTROL**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 4

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will understand the basic principles of an integrated pest management system with basic control measures as per agricultural enterprise. Furthermore, the learner will be able to recognise and differentiate between economical damageable pests and diseases and make use and interpret sources for application or product management.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of pest identification in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Monitor pests, diseases and weeds on crops.

NQF 2: Apply crop protection and animal health products effectively and responsibly.
SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate a basic understanding of the principles of integrated pest management.
2. Identify and differentiate between economically damageable pests, sporadic pests, diseases and symptoms using guides or resource material.
3. Understand the different types of control measures that can be applied in integrated pest management programme for pests, diseases and weeds.
4. Assist in developing a plan to assist the decision making process on the type of control to apply.
5. Execute post-application monitoring.
6. Apply environmental and community considerations.
7. Oversee the management of an agrochemical storage facility effectively and responsibly.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Demonstrate a basic understanding of the principles of integrated pest management.

Range: Principles of integrated pest management include but are not limited to the regular monitoring or scouting for pests, diseases and weeds.

Assessment criteria:

- 1.1 The fact that integrated pest management is the integration of a number of different methods of pest control is explained.
 - 1.2 The importance of monitoring at regular intervals is discussed.
 - 1.3 The influence of the ratios between pests and predators on the decision on which control method to use is described.
 - 1.4 The importance of replacing the pheromones, clearing the traps regularly and the collecting and assessing of information is explained.
 - 1.5 The importance of recording the data correctly is explained.
 - 1.6 Data is recorded by applying the basic principles.
-
- 2 Identify and differentiate between economically damageable pests, sporadic pests, diseases and symptoms using guides or resource material.

Assessment criteria:

- 2.1 Pests and beneficials on specific crops (all crops) are recognized, identified, counted and recorded and the impact or findings is assessed.

- 2.2 The damage and the cause of the damage is observed, categorically explained and identified.
 - 2.3 Access to guides/publications and other resources and the use thereof is demonstrated.
 - 2.4 Selection of method of identification is motivated.
(Range: Method of identification includes but is not limited to macroscopic and microscopic, and chemical).
 - 2.5 Symptoms are observed and identified.
 - 2.6 Scouting activities are performed regularly and thoroughly.
 - 2.7 Weather patterns are observed and the effect thereof interpreted.
3. Understand the different types of control measures that can be applied in integrated pest management programme for pests, diseases and weeds.

Range: Control measures include but are not limited to chemical control, biological control, mechanical control etc.

Assessment criteria:

- 3.1 The different control measures that can be applied within an integrated management is explained.
 - 3.2 The concept of biological control is explained.
 - 3.3 The concept of cultural control is explained.
 - 3.4 The concept of mating disruption its use is described.
 - 3.5 The sterile insect technique its application is explained.
 - 3.6 Other methods that can be integrated into the control management programme is explained.
 - 3.7 The application of some of these concepts in disease and weed control is explained.
 - 3.8 The most appropriate control measures, taking into consideration integrated pest management and the environmental impact is selected.
 - 3.9 Access to guides/publications and the use thereof is demonstrated.
 - 3.10 Environmental considerations that should be considered are explained.
 - 3.11 Resistance and mode of action re rotation is determined.
 - 3.12 Institutes to contact for advice are identified.
 - 3.13 Legal and market requirements are adhered to.
4. Assist in developing a plan to assist the decision making process on the type of control to apply.

Range: Decision-making includes but is not limited to, assisting with deciding whether a problem exists or what type of control to apply.

Assessment criteria:

- 4.1 Monitoring data is collected and used.
- 4.2 Data is incorporated into a management plan.
- 4.3 The process followed to assist in the decision making process is described.
- 4.4 The type of control is decided on, selected and implemented.
- 4.5 Application instruction per etiquette is followed.
- 4.6 Weather, growth stage and type of product are considered.
- 4.7 Type of production system is considered.
- 4.8 Appropriate application method is decided on.

(Range: Appropriate application includes but is not limited to hand, mechanical, aerial, fogging).

- 4.9 Safety measures are selected and managed.
 - 4.10 Calibration and mechanical integrity of the equipment is determined.
 - 4.11 Quality and availability of water is according to requirements.
5. Execute post-application monitoring.

Assessment criteria:

- 5.1 Efficacy of product is determined.
 - 5.2 Follow-up generation is identified.
 - 5.3 Side effects and/or damage are determined.
 - 5.4 Equipment is cleaned and serviced.
6. Apply environmental and community considerations.

Assessment criteria:

- 6.1 Poisoning of wildlife and beneficials is avoided.
 - 6.2 Soil and water contamination is avoided.
 - 6.3 Drift onto non-targeted area is avoided.
 - 6.4 Empty containers are appropriately disposed of.
 - 6.5 Rinse water is properly managed.
 - 6.6 Aerial application warnings are performed.
7. Oversee the management of an agrochemical storage facility effectively and responsibly.

Assessment criteria:

- 7.1 The storage facility adheres to minimum requirements.
(Range: Minimum requirements include but are not limited to safety signs, equipment, safety equipment, protective gear, drainage, ventilation and lighting).
- 7.2 Products are categorised and segregated.
- 7.3 Record of incoming and outgoing products is current and complete.
- 7.4 Proper stacking methods are applied.
- 7.5 Emergency and safety plan is in place.
- 7.6 Access control and security is according to requirements.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-7.
2. **Self-organisation and management** relates to specific outcomes 1-7.
3. **Information evaluation** relates to specific outcomes 1-7.

4. **Communication** relates to specific outcomes 1-7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Life cycle of an insect.
2. Natural enemies.
3. Ways of spreading.
4. Contamination.
5. Implication of contamination on the quality and marketability of the product.
6. Importance of hygiene.
7. Scouting procedures.
8. Record keeping.
9. Hygiene.
10. Spreading of pests and diseases.
11. Pest levels that cause economic loss.
12. Safety rules and principles
13. Descriptions of pests and damage.
14. Sources of information.
15. Procedures.
16. Interpretation of pictograms, colour coding and symbols.
17. Legal implications of misuse / abuse i.e. off-label use.
18. Potential hazards associated with agrochemicals.
19. Cleaning and maintenance of equipment.
20. General symptoms of poisoning.

21. Impact of product on the environment, humans and other organisms.
22. Basic storage principles and requirements.
23. Principles and methods of mixing.
24. Empty container and waste disposal.
25. Emergency procedures.
26. Legislation and Codes of Practice.
27. First aid.
28. Hygiene.
29. Contamination.
30. Product spectrum.
31. Principles of product categorisation and segregations.
32. Resistance and management thereof.

33. Information resources.
34. Terminology.
35. Principles of:
 - Weed control.
 - Plant disease control.
 - Insect control.
 - Nematode control.
 - Agrochemical application.
36. Effective use of standard reference materials and other resources.
37. Reading and understanding labels.
38. Calibration.
39. Principles and procedures of responsible application.
40. Correct use of equipment.
41. Health and safety.
42. Principles of integrated pest management.
43. Environmental knowledge.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.5.6**PLANT PRODUCTION**

TITLE	:	PROPAGATE PLANTS IN A VARIETY OF SITUATIONS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	3
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this standard will be able to propagate plants.

Learners will gain specific knowledge and skills in plant propagation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Explain the propagation of plants.

NQF 4: Demonstrate a basic understanding of the physiological processes in plant growth and development.

NQF 3: Explain the planning and scheduling of tasks in a production environment.

NQF 3: Interpret and maintain factors influencing agricultural enterprises and plan accordingly.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Recognise and use propagation structures, facilities and materials under supervision and do problem solving on his / her own in relation to processes.
 2. Propagate a variety of plant types using different asexual methods (processes).
 3. Experiment with different types of propagation media and environment.
 4. Establish a process for the post propagation activities.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Recognise and use propagation structures, facilities and materials under supervision and do problem solving on his / her own in relation to processes and maintenance.

Range: The propagation structures include but are not limited to sexual and asexual parts of the plant. Facilities include but are not limited to controlled, protected or open field environments.

Assessment criteria:

- 1.1 The propagation structures available for the propagation of plant material for different production systems are identified and evaluated.
 - 1.2 Potential faults of the structures and describe the effect on the success or failure of propagation material are identified.
 - 1.3 The effect of different propagation media on the success or failure of propagation material is described.
 - 1.4 Growing media components are properly measured mixed in form of composition and sterilised.
2. Propagate a variety of plant types using different asexual methods.

Range: Asexual propagation methods include but are not limited to plant cuttings, budding and grafting (basic).

Assessment criteria:

- 2.1 The different methods of asexual propagation are identified and applied and best practice is selected.
- 2.2 The different methods of asexual propagation in relation to the types of plants are explained.
- 2.3 The different types of budding and grafting methods are applied and explained.
- 2.4 The use of hormones for asexual propagation is described.
- 2.5 Methods to guide a team to use the correct sanitary measurements in propagation procedures is applied.

3. Experiment with different types of propagation media and environment.

Range: Propagation media includes but is not limited to artificial media, soil, peat moss, heated and humidified seed boxes etc. Environment includes but is not limited to controlled atmosphere, open fields etc.

Assessment criteria:

- 3.1 The role of artificial propagation media in different propagation systems is described.
- 3.2 Possible methods of solving propagation problems with reference to propagation media and environments are applied and described.
- 3.3 The effectiveness of different processes with the propagation of material is compared and contrasted.
- 3.4 Successful versus non-successful propagation media and environments are evaluated.

4. Establish a process for the post propagation activities.

Range: Post propagation activities include but are not limited to the pest and disease control of, fertilising and irrigation of, hardening off of, and transferring of propagated material to different environments.

Assessment criteria:

- 4.1 Readiness of the propagated material to be transferred to the next phase is described and identified.
- 4.2 The basic symptoms of pest or disease problems encountered in the propagation process are described.
- 4.3 The different phases the propagated material passes through from the controlled environment to the field is explained.
- 4.4 The possible problems that can be encountered with the hardening off process of the propagated material are solved and prevented.
- 4.5 A hardening off process is established.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** In relation of all processes of plant propagation.
2. **Teamwork:** Especially in relation of his role as leader of a team.
3. **Self-Management:** Good organisational skills are critical.
4. **Interpreting Information:** Especially interpreting environmental interaction.
5. **Communication:** As leader of a team essential.
6. **Use Science and Technology:** Basic knowledge in relation of all processes.
7. **The world as a set of related systems:**
8. **Self-development:** Especially management, organisation and communication critical.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Basic safety requirements related to the propagation environment, tools and procedures.
- 2 Basic hygiene requirements for the propagation environments.
- 3 Growing media – wet and dry.
- 4 Weeds, pest and diseases.
- 5 The safe use and handling of a variety of Chemicals and hormonal and other organic preparations.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.5.7**PLANT PRODUCTION**

TITLE : **IMPLEMENT SOIL FERTILITY AND PLANT NUTRITION PRACTICES**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 4

CREDIT : 3

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to set up and supervise the implementation of soil preparation and maintain and conserve soil in a safe, effective and responsible manner with consideration to the environment.

Learners will gain specific knowledge and skills in soil and plant nutrition and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standard

NQF 3: Manage Soil Fertility and Plant Nutrition.

NQF 4: Implement a data collection plan.

NQF 4: Execute sustainable resource use and quality control.

NQF 4: Plan and maintain environmentally sound agricultural processes.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Interpret recommendations and set up nutritional programmes based on recommendations.
 2. Implement soil utilization plan for specified crops.
 3. Identify and interpret symptoms of nutritional deficiencies, and make full recommendations.
 4. Manage soil improvement according to soil properties.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Interpret recommendations and set up a nutritional programme based on recommendations.

Range: Recommendations may be from an analytical laboratory, and nutritional programmes may include application of agrochemicals, organic material, lime, etc.

Assessment criteria:

- 1.1 A soil nutrition programme is developed based on a recommendation
- 1.2 Stock levels are maintained and orders are placed timeously.

4. Implement soil utilization plan for specified crops.

Range: Soil depth, drainage, infiltration rate, pH, water holding capacity, field capacity, soil horizons, soil aeration, erosion risks, organic content, texture, clay content, structure, biological content, compaction.

Assessment criteria:

- 2.1 The ability to select the appropriate soil for various crops is demonstrated.
- 2.2 The influence of soil characteristics or crop growth is explained.

3. Identify and interpret symptoms of nutritional deficiencies, and make full recommendations.

Range: Macronutrients may include (among others) Nitrogen, Phosphorous, Potassium, Calcium, Magnesium and Sulphur. Micronutrients may include (among others) Boron, Zinc, Iron, Molybdenum and Manganese.

Assessment criteria:

- 3.1 Colour changes on plants are interpreted and related to specific nutrient deficiencies.
- 3.2 Full recommendations for both macro- and micronutrients are proposed and presented.

3.3 Soil and leaf samples for are taken for laboratory analysis.

4. Manage soil improvement according to soil properties.

Range: Soil improvement methods may include tillage operations (mechanical, non mechanical, organic, minimum and zero tillage).

Assessment criteria:

4.1 The appropriate soil preparation method is selected.

4.2 Records are maintained over time and changes in soil properties are analysed and used in management programmes

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not, unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to all specific outcomes.
2. **Teamwork:** Relates to all specific outcomes.
3. **Self-management:** Relates to all specific outcomes.
4. **Interpreting Information:** Relates to all specific outcomes.
5. **Communication:** Relates to all specific outcomes.
6. **Use Science and Technology:** Relates to all specific outcomes.
7. **The world as a set of related systems:** Relates to all specific outcomes.
8. **Self-development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Sampling procedures.
2. Chemical, properties of soil – pH, nutrient status and degradation.
3. Physical properties of soil – Texture, structure, soil profiles, crust formation, erosion types, compaction, and degradation.
4. Biological properties of soil and processes.
5. Soil ecology e.g. soil organisms, food webs, role of water and oxygen in soil.
6. Soil health and conservation.
7. Role of living organisms.
8. Conservation practices – Runoff control, contours.
9. Tillage operations – mechanical, non mechanical, organic, minimum and zero Tillage and application of nutrients (liquid and solid) *Primary and secondary soil preparation methods.*
10. Soil preparation and fertiliser/ compost application equipment.

11. Nutrients – mixtures, limes, calcite and dolomite lime, single nutrients and compost, liquids, etc.
12. Calibration of equipment.
13. Chemical, physical and biological properties, degradation and rehabilitation.
14. Characteristics of the nutrients.
15. Role of nutrients in the plant.
16. Rules and regulations for storage and handling of agro-chemicals transport.
17. Crop requirements.
18. Soil water relationships.
19. Mulching and ploughing in of mulch layer.
20. Pollution prevention.
21. Biological processes.
22. Mineral cycles e.g. Nitrogen.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.6.1**ELECTIVE**

TITLE	:	IMPLEMENT DAIRY PRODUCTION OPERATIONS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDITS:		6
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to manage all operations in the dairy parlour. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and food production.

Learners will gain specific knowledge and skills in dairy production and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Within the context of application, dairy animals include but are not limited to cattle, sheep or goats, whichever is applicable to the area of operation. All range statements should be interpreted as relevant to the context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 3 Explain Dairy Production.

NQF 3 Explain the prevention and treatment of animal diseases.

NQF 4 Explain functional animal anatomy and physiology.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Demonstrate knowledge of milking theory.
 2. Demonstrate knowledge of the principles of hygiene.
 3. Demonstrate knowledge of milk cooling devices.
 4. Demonstrate the ability to critically assess parlour records and make basic operational decisions based on them.
 5. Evaluate cause of tainted milk or other spoilage factors and take remedial action.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate knowledge of milking theory.

Assessment criteria:

- 1.1 The relevance of udder structure is described.
- 1.2 Milking stimuli are described.
- 1.3 The optimum pulsation rate and vacuum pressure in milking equipment is explained.

2. Demonstrate knowledge of the principles of hygiene.

Assessment criteria:

- 2.1 The importance of hygiene in the production of milk is described and ensured through the application of appropriate measures.
- 2.2 Critical factors and control points in the production of good quality clean milk are identified and maintained.
- 2.3 The ability to “trouble shoot” and to decide on corrective action is demonstrated.
- 2.4 Management decisions are communicated and delegated.

3. Demonstrate a knowledge of milk cooling devices.

Assessment criteria:

- 3.1 The reasons for the need of rapid cooling of milk are explained.
- 3.2 The different types of cooling methods and devices described.
- 3.3 The assessment of efficiency of cooling devices described.
- 3.4 The ability to “trouble shoot” and to decide on corrective action is demonstrated.

4. Demonstrate the ability to critically assess parlour records and make basic operational decisions from them.

Assessment criteria:

- 4.1 Milk records are kept.
 - 4.2 Animals are categorized for feeding or other purposes.
 - 4.3 Disease incidence is recorded.
 - 4.4 Sick animals are grouped for separate milking and treatment.
 - 4.5 Milk temperature records are explained as a basic contributor to milk quality.
5. Evaluate cause of tainted milk and take remedial action.

Assessment criteria:

- 5.1 Taints or spoilage are identified.
- 5.2 Tainted or spoiled milk is prevented from contaminating untainted milk in milk systems.
- 5.3 The source of tainting or spoilage is identified and removed.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to outcomes 2 – 5.
2. **Teamwork** relates to outcomes 2 - .5
3. **Self-management** relates to outcomes 1- 5.
4. **Communication** relates to outcomes 2 – 5.
5. **Interpret information** relates to outcomes 2 – 5.
6. **Science and Technology** relates to outcomes 1-5.
7. **Inter-relatedness of systems** relates to outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The names and functions of relevant equipment, procedures and implements related to parlour management.
2. The sensory cues and symptoms involved in the execution of pre-planned programmes.

3. The purpose of the implementation of procedures and pre-planned programmes.
4. The implication of incorrect execution of procedures in the milking parlour.
5. All rules and conduct relevant to the procedures implemented.
6. The interrelations between the observations, procedures and corrective measure in a milking parlour.
7. Record keeping.
8. Develop a two-way relationship with supervisor and manager in regard to responsibilities and reporting (Communication Skills).

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.6.2**ELECTIVE**

TITLE	:	DEVELOP BEE SITES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to develop, manage and expand bee sites. In addition they will be well positioned to extend their learning and practice into other areas of beekeeping.

Learners will gain specific knowledge and skills in bee keeping and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the following unit standards or equivalent:

NQF 3: Manage sites for bee keeping.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Investigate areas where sites may be developed or bees placed.
 2. Initiate communication with the land owner regarding a land-use or rental agreement.
 3. Develop sites, site infrastructure, site utilisation and site security.
 4. Continuously evaluate bee sites regarding their value and relevance.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Investigate areas where sites may be developed or bees placed.

Range: Environmental niches for bee sites or placement include but are not limited to areas of natural vegetation, agricultural areas (including plantings requiring pollination by honeybees), forestry areas, urban areas or other sources of flowering plants.

Assessment criteria:

- 1.1 Bee sites or hive placements are investigated and actively sourced.
 - 1.2 Environmental data related to bee nutrition and forage is processed.
 - 1.3 Areas identified as bee sites are evaluated, based on data and information gathered regarding, infrastructure.
2. Initiate communication with the landowner regarding a land-use or rental agreement

Range: Communication includes but is not limited to personal communication and agreements, contractual agreements, telephonic, fax or electronic communication regarding intent and approval or disapproval.

Assessment criteria:

- 2.1 Public relations principles and procedures are applied in approaching land owners of potential bee sites or bee placements.
 - 2.2 A land-use or rental agreement is negotiated with the land owner.
 - 2.3 Documentation or other vehicles are developed to support such agreements.
 - 2.4 Land access protocols and relevant legislations regarding land access and use are followed.
3. Develop sites, site infrastructure, site utilisation and site security.

Range: Site development includes, but is not limited to infrastructure, neatness, good order, fire-proofing, fencing, access, payment, pest and weed control, planting and development of further bee forage.

Assessment criteria:

- 3.1 Knowledge and tact in the establishment of appropriate sites and bee hive placing is exhibited.
 - 3.2 The implementation of infrastructure relating to the development of the site is managed.
 - 3.3 Further bee forage in the area is developed (within terms of the land-use agreement) as additional resources.
4. Continuously evaluate bee sites regarding their value and relevance.

Assessment criteria:

- 4.1 Bee sites are attended to regularly.
- 4.2 Data gathered from specific sites related to the value of the site is evaluated.
(Range: data collected from sites include but are not limited to data on production, transportation, access, dangers and threats, opportunities and strengths)
- 4.3 Techniques used to manipulate data in order to formulate decisions regarding the value of the bee site are applied.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 4.
2. **Teamwork:** relates to specific outcomes 2 and 3.
3. **Self Organisation and Management:** relates to specific outcomes 1 to 4.
4. **Communication:** relates to specific outcomes 1 to 4.
5. **Personal Development:** relates to specific outcomes 1 to 4.
6. **Interpretation of information:** relates to specific outcomes 1, 3 and 4.
7. **The world as a set:** relates to specific outcomes 1 to 4.
8. **Science and technology:** relates to specific outcome 1.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific nectar and pollen bearing plant species within a site.
2. Sensory evaluation of bee sites over time.
3. Observation of bee visits to various plants over time.
4. Evaluation of data related to bee sites and bee foraging.
5. The purpose of learning about bee site development.

6. Basic agricultural infrastructure.
7. Public relations.
8. Basic record keeping.
9. Observation of sensory cues in plants and bees.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 4.6.3**ELECTIVE**

TITLE	:	RECOGNISE AGR/ECOTOURISM WITHIN THE STRATEGIC ENVIRONMENT
SAQA	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learners achieving this unit standard must demonstrate an ability to recognize the strategic environment of the Agri/Ecotourism business and be able to interpret its importance. In addition they will be well positioned to extend their learning and practice into other areas of strategic thinking and management, thereby providing valuable inputs into managerial decision-making.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Communicate agri/eco tourism principles and concepts effectively and adapt to needs.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify the strengths of the Agri/Ecotourism venture as part of the strategic plan.
 2. Identify the weaknesses of the Agri/Ecotourism venture as part of the strategic plan.
 3. Identify the opportunities of the Agri/Ecotourism venture as part of the strategic plan.
 4. Identify the threats of the Agri/Ecotourism venture as part of the strategic plan
Maintain, appraise and make recommendations on success factors within the strategic plan towards management.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify the strengths of the Agri/Ecotourism venture as part of the strategic plan.

Range: Internal at farm/reserve (micro) level; economic, human resources, natural environment, attractions, capital, etc.

Assessment criteria:

- 1.1 The internal economic and financial strengths of the venture are identified.
 - 1.2 The internal human resources strengths of the venture are identified.
 - 1.3 The internal natural and climatic environment strengths of the venture are identified.
 - 1.4 The internal man-made and natural attractions of the venture are identified.
-
2. Identify the weaknesses of the Agri/Ecotourism venture as part of the strategic plan.

Range: Internal at farm/reserve (micro) level; capital and financial resources, human resources, natural environment and attractions, susceptibility to risks.

Assessment criteria:

- 2.1 The internal economic and financial weaknesses of the venture are identified.
- 2.2 The internal human resources weaknesses of the venture are identified.
- 2.3 The internal natural and climatic environment weaknesses of the venture are identified.
- 2.4 The lack of internal man-made and natural attractions of the venture at farm/reserve level in comparison to the needs expressed by visitors is identified.

3. Identify the opportunities of the Agri/Ecotourism venture as part of the strategic plan.

Range: External to the farm/reserve at meso and macro levels (Economic interest rates, exchange rates], political, labour availability, disasters in competing areas).

Assessment criteria:

- 3.1 The external economic and financial opportunities impacting on the venture (low interest rates, weak Rand in relation to foreign currencies, etc.) are identified.
- 3.2 The external human resources opportunities impacting on the venture (migration rates, higher net spending income of tourists, access to external expertise, etc.) are identified
- 3.3 The external natural and climatic opportunities impacting on the venture (natural attractions and favourable weather patterns) are identified.
- 3.4 The presence of disasters that may occur in competing destinations that offer opportunities for the venture are identified.

4. Identify the threats of the Agri/Ecotourism venture as part of the strategic plan.

Range: External to the farm/reserve at meso and macro levels

Assessment criteria:

- 4.1 The external economic and financial threats impacting on the venture (high interest rates, political unrest, strong Rand in relation to foreign currencies, etc.) are identified
- 4.2 The external human resources threats impacting on the venture (low migration rates, weaker net spending income of tourists, limited access to external expertise, etc.) are identified
- 4.3 The external natural and climatic threats impacting on the venture (lack of external natural attractions in terms of quantity and quality, unfavourable weather patterns) are identified.
- 4.4 The presence of local disasters that may occur in local area that may let the local area loses its competitiveness are identified.

5. Maintain, appraise and make recommendations on success factors within the strategic plan towards management

Range: Amenities, Access, Auxiliary services, Attractions.

Assessment criteria:

- 5.1 The success factors (amenities, access structures, auxiliary services and attractions) impacting on the Agri/Ecotourism venture appraised.
- 5.2 Alternatives to maintain success are identified.
- 5.3 Recommendations are communicated effectively to management and authorities with the necessary evidence are produced.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem-solving** relates to specific outcomes 1-5.
2. **Teamwork** relates to specific outcomes 1-5.
3. **Self-organization and management** relates to specific outcomes 1-5.
4. **Information evaluation** relates to specific outcomes 1-5.
5. **Communication** relates to specific outcomes 1-5.
6. **Use science and technology** relates to specific outcomes 1-5.
7. **Inter-relatedness of systems** relates to specific outcomes 1-5.
8. **Self-development** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Knowledge on SWOT (strategic) analysis.
2. Appraisal of success factors for tourist destinations (amenities, auxiliary services, access, attractions).
3. Flow (provision) of information for strategic planning to authorities and management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.6.4**ELECTIVE**

TITLE	:	MANAGE AGRICULTURAL EXPORT LOGISTICS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

Learners achieving this competence will be able to plan & manage the export logistics process as an integrated part of the business plan.

In addition they will be well positioned to extend their learning and practice to the strategic management process and contribute towards the enhancement of entrepreneurship and systems thinking.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to the export of agricultural produce.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Explain the application of marketing principles within an alternative and dynamic agricultural marketing environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand the export cycle & role of various role players.
 2. Define the requirements of a good sales contract.
 3. Appraise the use of appropriate Incoterms i.t.o. risk, responsibility & cost to structure sales, payment, carriage & insurance in the agri export process.
 4. Understand taxes, incentives & payments involved within the export process.
 5. Identify documentation needed within the agricultural export process.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand the export cycle & role of various role players.

Range: Apply to all types & sectors of agricultural exports as integrated elements of the export market plan.

Assessment criteria:

- 1.1 The export cycle in terms of the functions of the seller/exporter, carrier, out phase, in phase, receiver, and buyer is explained.
- 1.2 The forwarding process & identification of critical steps is described.
- 1.3 Pre & post shipment inspection is defined.
- 1.4 The importance and solving of packaging problems especially in terms of risk avoidance is identified and described.

2. Define the requirements of a good sales contract.

Range: Apply to all types & sectors of agricultural exports.

Assessment criteria:

- 2.1 An export order and prepare a pro forma invoice as sales offer is interpreted.
- 2.2 The essential, important and non-essential criteria of a sales contract is explained.
- 2.3 The key points in a sales contract is distinguished.

3. Appraise the use of appropriate Incoterms in terms of risk, responsibility & cost to structure sales, payment, carriage & insurance in the agricultural export process.

Range: Apply to all types & sectors of agricultural exports as integrated element of the export market plan.

Assessment criteria:

- 3.1 The 13 Incoterms and show where risk, responsibility & cost passes in each are compared.
- 3.2 The different types of freight rates for air- & sea freight are distinguished.
- 3.3 The 3 main international payment methods & the pros & cons of each are described.
- 3.4 The need for export insurance & describe the different types are explained.
- 4. Understand taxes, incentives & payments within the export process.

Range: Apply to all types & sectors of agricultural exports.

Assessment criteria:

- 4.1 The basic functioning of export incentive schemes name and explain.
- 4.2 The key elements in a selected export incentive scheme specifically with regard to VAT are described and explained.
- 4.2 Reasons for tax invoices to be standard or zero rated are distinguished and explained.
- 5. Identify documentation needed within the agricultural export process.

Range: Apply to all types & sectors of agricultural exports.

Assessment criteria:

- 5.1 The different types of transport documents needed in the export business are described.
- 5.2 The key issues in the DA 550, document, the F 178 document and Form A (certificate of origin or declaration of origin) are selected and explained.
- 5.3 All export-orientated documents are filed in a safe and accessible way.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-5.
2. **Self-organisation and management** relates to specific outcomes 1-5.
3. **Information evaluation** relates to specific outcomes 1-5.
4. **Use science and technology** relates to specific outcomes 1-5.
5. **Inter-relatedness of systems** relates to specific outcomes 1-5.
6. **Self-development** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 Agricultural export cycle.
- 2 Requirements of sale contracts.
- 3 Knowledge on appropriate Incoterms.
- 4 Knowledge on export incentives.
- 5 Knowledge on export taxes and payment.
- 6 Documentation needed within agricultural exports.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.6.5**ELECTIVE**

TITLE	:	ENSURE SUSTAINABLE WILD FLOWER HARVESTING OPERATIONS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture: Farming
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to ensure sustainable wild flower harvesting operation in an agricultural environment.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

- NQF 3: Maintain and support sustainable wild flower harvesting practices.
- NQF 4: Plan and maintain environmentally sound agricultural processes.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate a broad knowledge of sustainable harvesting and eco system sustainability.
2. Demonstrate compliance with regards to relevant legislation.

3. Manage, analyse and integrate relevant data into operating procedures and regional monitoring program.
 4. Develop and manage a wild flower harvesting plan for a farm.
 5. Demonstrate the ability to do research and enhance current potential of harvesting products to keep with new market initiatives.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate a broad knowledge of sustainable harvesting and eco system sustainability.

Range: Sustainable harvesting and ecosystem health within the local region.

Assessment criteria:

- 1.1 A good understanding of sustainable harvesting practices is demonstrated.
- 1.2 A good understanding of harvesting methodology is demonstrated.
- 1.3 A good understanding of the functioning of an ecosystem within the local region is demonstrated.
- 1.4 A good understanding of the impact of harvesting practises on an ecosystem is demonstrated.
- 1.5 The impact of harvesting on the ecosystem is minimized.
- 1.6 A harvesting schedule is developed.

2. Demonstrate compliance with regards to relevant legislation.

Range: All relevant legislation pertaining to harvesting operation.

Assessment criteria:

- 2.1 Relevant legislation is applied.
- 2.2 Relevant legislation pertaining to harvesting operation is sourced.
- 2.3 Compliance with legislation and to effectively implement legislation is demonstrated.

3. Manage, analyse and integrate relevant data into operating procedures and regional monitoring program.

Range: All data pertaining to harvesting operation on farm level needs to be fed or be available for use on a regional level.

Assessment criteria:

- 3.1 The purpose for managing and analysing data is described.
- 3.2 Data within the operating procedures on farm level is managed, analysed and integrated.
- 3.3 The reason why data needs to feed into the regional monitoring program is explained.
- 3.4 Interaction on regional level is executed.

4. Develop and manage a harvesting plan for a farm.

Range: Develop using the information gathered at farm level, a harvesting plan and to manage it accordingly against the plan.

Assessment criteria:

- 4.1 A management plan is developed.
- 4.2 A harvesting operation is implemented and managed against a management plan.
- 4.3 A management plan is reviewed & updated to compensate for planned & unplanned changes.

5. Demonstrate the ability to do research and enhance current potential of harvesting products to keep up with new market initiatives.

Range: Research the marketing potential of harvesting products.

Assessment criteria:

- 5.1 The market initiative relevant to the harvesting products is researched.
- 5.2 Different market strategies and potential is assessed.
- 5.3 Harvesting of the product is adapted according to the marketing requirements.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the

specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-5.
2. **Self-organisation and management** relates to specific outcomes 1-5.
3. **Information evaluation** relates to specific outcomes 1-5.
4. **Communication** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic management.
2. Basic financial management.
3. Basic market readiness.
4. Occupational Health & Safety.
5. Labour law.

6. Basic ecological principles.
7. Basic species identification.
8. Ecological sustainable methods of harvesting.
9. Basic fire fighting.
10. Basic first Aid.
11. Resource management.
12. Risk management.
13. Basic conflict resolution and management.
14. Basic background on SDF, IDP ext. processes.
15. Basic map reading.
16. GIS use.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.6.6**ELECTIVE**

TITLE	:	MANAGE ORGANIC CERTIFICATION AND INTERNAL CONTROL SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to analyse marketing opportunities and manage organic certification of a farming group.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Introduction to organic inspection certification and internal control systems.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Analyse national agricultural markets, and the factors that affect organic prices at local, provincial and national levels.
- 2 Be aware of main international market requirements for organic produce.
- 3 Manage preparation for farm inspection and certification processes.

- 4 Interpret the functioning and requirements of Internal Control Systems, and apply these to the management of a Farmers Association.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Analyse national agricultural markets, and the factors that affect organic prices at local, provincial and national levels.

Range: Thorough knowledge of national and international organic regulations and of inspection procedures (farm inspection, fraud detection, internal control systems, auditing of production [integrity of organic chain, traceability of produce, labelling, input supply checking methods, transport], inspection report writing, drawing of farm sketch maps, communication skills).

Techniques for researching the preferences of the local market and familiarity with the preferences and requirements of organic consumers.

Marketing tools that are appropriate for the particular market sector (e.g. labels, packaging, branding).

Assessment Criteria:

- 1.1 Market prices are access (by telephone, newspaper, television or internet) and market trends analysed for various commodities and seasons.
- 1.2 Quality and appearance are differentiated between.
- 1.3 The benefits of organically grown produce are promoted.

2. Be aware of main international market requirements for organic produce.

Assessment Criteria:

- 2.1 The requirements of European Community regulations and their amendments, the United States National Organic Production (NOP) rules and the Japanese Accreditation System (JAS) are listed.
- 2.2 The requirements and procedures of the Perishable Products Export Control Board (PPECB) are listed and explained.

3. Manage preparation for farm inspection and certification processes.

Assessment Criteria:

- 3.1 The contents of the current version of the International Organic Inspectors Manual as approved by the International Federation of Organic Agricultural Movements (IFOAM) are described.
- 3.2 Practical farm inspection procedures are explained.
- 3.3 Aspects involved in the process of organic inspection report writing are explained.

4. Interpret the functioning and requirements of Internal Control Systems, and apply these to the management of a Farmers Association.

Assessment Criteria:

- 4.1 Support the Farmers Association with the application of organic rules.
- 4.2 Be familiar with the content of appropriate Farmers Association constitutions.
- 4.3 Describe the requirements of Internal Control Systems.
- 4.4 Be able to apply disciplinary measures and sanctions to ensure compliance of farmers with the rules of the Farmers Association.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** relates to specific outcomes 1 to 4.
2. **Teamwork:** relates to specific outcomes 1 to 4.
3. **Self-management:** relates to specific outcomes 1 to 4.
4. **Information evaluation:** relates to specific outcomes 1 to 4.
5. **Communication:** relates to specific outcomes 1 to 4.
6. **Use science and technology:** relates to specific outcomes 1 to 4.
7. **World as a set of related systems:** relates to specific outcome 2.
8. **Self-development:** relates to specific outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic world trading parameters.
2. Display community leadership qualities (responsibility & accountability)
3. Information management skills.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.6.7**ELECTIVE**

TITLE	:	IMPLEMENT A PERMACULTURE SITE DESIGN
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	7
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The primary purpose of this unit standard is to provide for specialisation in the field of Permaculture. It provides learners from a wide range of agricultural disciplines with a range of practical applications, based on an existing Permaculture design, that contribute to sustainable living and agricultural practices. Learners would be expected to implement a design and contribute to the sustainable practices of an enterprise.

The unit standard can be used as the foundation for skills development programmes in the field of sustainable agriculture as well as an elective component of other qualifications.

Learners will gain specific knowledge and skills in permaculture and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Identify and apply permaculture principles.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Implement the integration of site elements and resources as outlined in a Permaculture Design.
2. Apply the use of local biological and other available resources according to a Permaculture Site Design.
3. Apply ecological processes and cycles according to plans outlined in a Permaculture Design.
4. Apply sustainable living practices as outlined in a Permaculture site design.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Implement the integration of site elements and resources as outlined in a Permaculture Design.

Range: A Permaculture Design is an illustrated map that is created by a Permaculture Designer that reflects the placement of site elements and resources in zones and sectors to create a sustainable system.

Assessment criteria:

- 1.1 The water-harvesting plan is implemented.
(Range: Water-harvesting may include, but is not restricted to, any of the following: the correct placement and building of swales, bunds, water tanks or pits, dams, bunds and contours).
- 1.2 Site elements are placed correctly in relation to other elements, as per the site design.
(Range: The placement of site elements refer to the tangible links made between different parts of the design, such as chickens are placed near the orchard to facilitate fowls foraging in it in a controlled way so that the chickens a) eat pests, and b) manure the soil. Thus the needs of the chicken (food and foraging) are met, and the needs of the orchard (pest control and soil nutrients) are met concurrently).
- 1.3 Intensive production areas are situated along or in areas that are visited or used the most frequently, as per the site design.
- 1.4 The extensive production areas are placed in areas that are visited or frequented the least often, as per the site design.
- 1.5 Sector planning is implemented as per the site design.

(Range: Sector planning refers to the management of 'wild energies' that enter the site, e.g. wind, water, unwanted people (intruders), and fire).

2. Apply the use of local biological and other available resources according to a Permaculture Site Design.

Range: Biotic resources refer to all living organisms. Abiotic resources refer to all aspects of the non-living environment and include, but are not limited to air, wind, sun, water, soil, and climate.

Assessment criteria:

- 2.1 On-site and/or local sources of input requirements are identified.
 - 2.2 Animals and other living organisms are placed as outlined in the design.
 - 2.3 The energy recycling, as per the design, is implemented.
 - 2.4 The energy needs of the site are met as per the site design.
3. Apply ecological processes and cycles according to plans outlined in a Permaculture Design.

Range: Ecological processes refer to energy flow and food webs, succession, and edge effects. Cycles refer to the mineral and water cycles.

Assessment criteria:

- 3.1 Animal and plant wastes are fully utilised as compost, mulch or through other appropriate practices, as per site Permaculture design.
- 3.2 A natural pest control plan is implemented, as per the site Permaculture design.
- 3.3 Rainfall is harvested and utilised, as per site design.
- 3.4 Soil fertility is achieved through the use of manures and plants.
- 3.5 Trees are planted to accelerate succession.
- 3.6 The edges, or boundaries between parts of the design, contain a variety of plants.
- 3.7 All soil in intensive production areas is mulched.
- 3.8 All trees are spot-mulched.
- 3.9 A wilderness area has been demarcated.

4. Apply sustainable living practices as outlined in a Permaculture site design.

Range: Sustainable living practices refer to the integration of social, economic, political and abstract components:

Social Components can include but are not limited to: Innovative settlement patterns such as eco-villages; the use of appropriate technology (e.g. solar energy, biogas digesters, flow forms for water purification, ram pumps, and wind energy); the dissemination of knowledge, skills and information.

Economic components include, but are not limited to: Local Employment Trading Systems; the establishment of cooperative community markets; community-supported agriculture systems.

Political components include, but are not limited to: The development of cluster groups as forums for discussion, representation and innovation; the development of.

Assessment criteria:

- 4.1 An informal trading system is established (such as a Local Employment Trading System or Community-Supported Agriculture) as per site Permaculture design.
 - 4.2 Environmentally friendly site practices are applied.
 - 4.3 The water management plan outlined in the Permaculture site design is implemented.
(Range: The water management plan should include the conservation and protection of water as well as the optimal harvesting of rainfall. It will also deal with an appropriate grey- and black-water harvesting system (water used for washing and cleaning and human effluent). .
 - 4.4 The needs and outputs of the surrounding community has been identified and taken into account.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.

- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 – 4.
2. **Teamwork:** relates to specific outcomes 1 – 4.
3. **Self-management:** relates to specific outcomes 1 – 4.
4. **Interpreting Information:** relates to specific outcomes 1- 4.
5. **Communication:** relates to specific outcomes 1 – 4.
6. **Use Science and Technology:** relates to specific outcomes 1 – 4.
7. **The world as a set of related systems:** relates to specific outcomes 1 – 4.
8. **Self-development:** relates to specific outcomes 1 and 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate an intermediate knowledge of:

1. Permaculture principles.
2. Permaculture ethics.
3. The characteristics of the formal and informal economy.
4. Ecological principles and processes.
5. The application of different climate strategies
6. The application of zone placements.
7. The characteristics of sectors (wind, sun, water, people).
8. The role of trees in a Permaculture system.
9. Sustainable community development strategies.

SUPPLEMENTARY INFORMATION

Permaculture – A Designer's Manual, Tagari Publications, and Introduction to Permaculture, Tagari Publications, are used as the foundational texts for Permaculture Design.

NOTES

END

LEVEL 4.6.8**ELECTIVE**

TITLE	:	APPLY ADVANCED PIG HUSBANDRY PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to carry out a supervisory role in the treatment of unhealthy pigs, the vaccination of pigs, assisted farrowing, cross fostering and artificial insemination practices.

Learners will gain specific knowledge and skills in pig husbandry practices and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Apply pig husbandry practices.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Decide on the treatment for unhealthy pigs.
 2. Plan the vaccination programme of pigs and piglets appropriately.
 3. Design the processes to assist farrowing and cross fostering.
 4. Integrate artificial insemination practices.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Decide on the treatment of unhealthy pigs.

Range: Unhealthy animals include but are not limited to agalactia, mastitis and other relevant pig disorders

Assessment criteria:

- 1.1 Symptoms of agalactia and mastitis in sows post-farrowing must be identified and evaluated.
 - 1.2 The relevant treatment to be administered to the sow is determined.
 - 1.3 Supervise the administration of the relevant treatment to the sows, boars and piglets.
 - 1.4 Identify other disorders and decide on the relevant treatment in the piggery.
2. Plan the vaccination programme of pigs and piglets appropriately.

Assessment criteria:

- 2.1 The correct vaccinations or inoculations to be carried out in the piggery must be evaluated and decided on.
- 2.2 The correct time or stage of production for vaccinations and inoculations to be carried out in the piggery must be identified and planned.
- 2.3 Supervise the administration of the correct vaccinations or inoculations in the piggery.

3. Design the processes to assist farrowing and cross fostering.

Assessment criteria:

- 3.1 Advanced farrowing problems must be recognised and assistance provided where required.
 - 3.2 The need for veterinary assistance is identified and implemented.
 - 3.3 Correct administration of veterinary drugs is justified and applied.
 - 3.4 Supervise and assist with the cross fostering procedures.
4. Integrate artificial insemination practices.

Assessment criteria:

- 4.1 Assistance and supervision with the collection, distension and handling of semen from pigs according to prescribed guidelines are provided.
- 4.2 The process to ensure the induction of oestrus and synchronisation of sows is designed and planned.
- 4.3 Assistance and supervision with the prescribed artificial insemination procedures for pigs is incorporated in the management programme.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. 1. **Problem Solving:** relates to specific outcomes 1-4.
2. 2. **Teamwork:** relates to specific outcomes 1-4.
3. **Self-management:** relates to specific outcomes 1-4.
4. **Interpreting Information:** relates to specific outcomes 1-4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Inter-relatedness of Systems:** relates to specific outcome 4.
7. **Self-development:** relates to specific outcomes 1-4.
8. **Science and Technology:** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic planning practices.
2. Basic management skills.
3. Interpersonal skills.
4. Communication skills.
5. Supervision of the treatment of unhealthy pigs, especially agalactia, mastitis and other disorders.
6. Follow a well-planned vaccination programme for the piggery.
7. Supervision during farrowing, assist where necessary and ensure cross fostering is carried out.
8. Carry out and assist with artificial insemination according to prescribed procedures.
9. Knowledge of anatomy, physiology and reproduction in pigs.

10. Purpose of this training is to develop a supervisor to ensure the smooth running of the pig enterprise.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.6.9**ELECTIVE**

TITLE	:	SUPERVISE ARTIFICIAL INSEMINATION PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to monitor and evaluate Artificial insemination procedures to ensure acceptable results

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 3: Apply basic artificial insemination practices.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Monitor and evaluate artificial insemination procedures.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Monitor and evaluate artificial insemination procedures.

Assessment criteria:

- 1.1 The correct use of instruments and equipment for artificial insemination is monitored and assisted with.
- 1.2 The correct identification of animals receptive for artificial insemination is monitored and assisted with.
- 1.3 The correct preparation of animals receptive for artificial insemination. is monitored and assisted with.
- 1.4 The correct implementation of procedures of animals receptive for artificial insemination is monitored and assisted with.
- 1.5 The application of post artificial insemination procedures is monitored and assisted with.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Observation Skills:** relates to specific outcome 1.
2. **Science and Technology:** relates to specific outcome 1.
3. **Interpreting Skills:** relates to specific outcome 1.
4. **Self-development:** relates to specific outcome 1.
5. **Management Skills:** relates to specific outcome 1.
6. **Teamwork:** relates to specific outcome 1.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Artificial insemination supervision.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 4.6.10**ELECTIVE**

TITLE	:	PRODUCE CROP IN A HYDROPONIC SYSTEM
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	4
CREDIT	:	4
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to supervise activities in a hydroponic farming operation, through an understanding of hydroponic systems

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Perform routine operations and identify basic problems in a hydroponic system.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify the properties of various growing media, for their use different hydroponic production contexts.
2. Prepare fertilizer / nutrient solution as per instructions.

3. Monitor PH and EC of the fertilizer solution.
 4. Identify the characteristics of the hydroponic operation structure.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify the properties of various growing media, for their use different hydroponic production contexts.

Range: Growing media include but are not limited to gravel, sawdust, rock wool, expanded clay, coco peat, penlite, vermiculite, etc.

Growing media characteristics water holding capacity, lifespan, re-usability, level of compaction, etc.

Assessment criteria:

- 1.1 Open and closed hydroponic systems are differentiated.
- 1.2 The characteristics of the growing media are described.
- 1.3 The characteristics of different growing media to specific hydroponic crop production contexts are related.

2. Prepare fertilizer / nutrient solution as per instructions.

Assessment criteria:

- 2.1 Fertilization/nutrient solution for different systems and its application as scheduled are prepared.
- 2.2 Nutrients for the fertilization solution include all chemicals, salts or combination thereof, usually used in hydroponic crop production irrigation systems include injection and bulk tank systems, are described.
- 2.3 The correct quantities of nutrients are applied.
- 2.4 The correct mixing procedures for nutrients are applied.

3. Monitor PH and EC of the fertilizer solution.

Range: The appropriate PH and EC range for all crops. The ideal PH and EC of different group of crops (leafy, fruit bearing, flowers, etc.) must be determined.

Assessment criteria:

- 3.1 The PH and EC range for specific crops are identified.
- 3.2 Ph and EC instruments calibrate according to the concepts of PH and EC.

4. Identify the characteristics of the hydroponic operation structure.

Range: Hydroponic structure, equipment and crop.

Assessment criteria:

- 4.1 Different hydroponic structures are identified and explained.
- 4.2 Different erection covering materials and uses thereof are identified and explained.
- 4.3 Different equipment/systems used for climate control are identified and explained.
- 4.4 Problems in the hydroponic production systems are identified and solved.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 4.
2. **Teamwork:** relates to specific outcomes 1 to 4.
3. **Self-management:** relates to specific outcomes 1 to 4.
4. **Interpreting Information:** relates to specific outcomes 1 to 4.
5. **Communication:** relates to specific outcomes 1 to 4.
6. **Inter-relatedness of Systems:** relates to specific outcomes 1 to 4.
7. **Self-development:** relates to specific outcomes 1 to 4.
8. **Science and Technology:** relates to specific outcomes 1 to 4.
9. **The world as a set of related systems:** relates to specific outcomes 1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Recognising healthy crops in the specific production environment.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.1.1**FUNDAMENTAL**

TITLE : DEVELOP AND MANAGE A DATA COLLECTION PLAN TO SUPPORT AN AGRICULTURAL ENTERPRISE

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 5

CREDIT :

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE : 4

REVIEW DATE :

PURPOSE

The learner achieving this unit standard will be able to develop and manage a data collection plan in the agricultural sector. The learner will be able to choose appropriate experimental designs, analyse, interpret and evaluate agricultural data and will also be able to develop implementation plans from findings of evaluation.

In addition to this, the learner will be able to recognise, interpret and report on a range of deviations in data collection processes and make recommendations based on these findings.

Learners will be well positioned to extend their learning and practice into other areas of information management and dissemination in the agricultural sector. Competent learners will understand the value of accurate data collection to the agricultural sector and be able to implement best practices in the area of information gathering.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standards or equivalent:

NQF 4: Implement a Data Collection Plan.
NQF 4: Give an overview of the industry structure.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Select appropriate experimental designs as required by the agricultural enterprise.
 2. Manage the implementation of data collection plans.
 3. Interpret data collection reports and make recommendations based on findings.
 4. Manage a data gathering team.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Select appropriate experimental designs as required by the agricultural enterprise.

Range: Experimental designs refer to the evaluation of various methodologies for the collection and manipulation of data to provide information for management or production purposes such as computer technology, paper and source document management systems, physical data collection techniques ranging from pencil and other physical tools, measuring instrumentation such as thermometers, barometers and rain gauges, through to automatic data logging devices and newer technology such as is required by precision farming methodologies and equipment

Assessment criteria:

- 1.1 A range of experimental designs is appraised.
 - 1.2 The most appropriate experimental designs are recommended for a range of contexts.
 - 1.3 The most appropriate criteria, characteristics and/or type of data to be collected are composed.
 - 1.4 A data collection plan is created.
-
2. Manage the implementation of data collection plans.

Range: All relevant data related to agriculture and agricultural research.

Assessment criteria:

- 2.1 The on-going progress of data collection is monitored.
- 2.2 Health and safety practices are adhered to.
- 2.3 Irregularities are identified and rectified.
- 2.4 Technical advice and support is provided for other workers.

3. Interpret data collection reports and make recommendations based on findings.

Range: All relevant data related to agriculture and agricultural research.

Assessment criteria:

- 3.1 An in-depth analysis of data is done.
 - 3.2 A comprehensive report is compiled.
 - 3.3 Report findings are assessed and recommendations made to the relevant sector.
 - 3.4 Recommendations are, if relevant, incorporated into future practices.
4. Manage a data gathering team.

Assessment criteria:

- 4.1 The personnel policy of the organisation is identified and interpreted.
- 4.2 Best practices for staff management are applied, in accordance with the organisation's policy.
- 4.3 Staff members at lower levels are provided with support and mentoring.
- 4.4 Work is done at optimum efficiency.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 - 4.
2. **Teamwork** relates to specific outcomes 1 - 4.
3. **Self-organisation and management** relates to specific outcomes 1 - 4.
4. **Information evaluation** relates to specific outcomes 1 - 4.
5. **Communication** relates to specific outcomes 1 - 4.
6. **Use science and technology** relates to specific outcomes 1 - 4.
7. **Inter-relatedness of systems** relates to specific outcomes 1 - 4.
8. **Self-development** relates to specific outcomes 1 - 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate an advanced knowledge of:

1. Selection and application of data collecting methods.
2. Analysing and evaluating data.
3. Organising data to develop implementation plans.
4. Presentation methods.

5. Human resource management.
6. Business management principles.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.1.2**FUNDAMENTAL**

TITLE	:	INTEGRATE SUSTAINABLE SYSTEMS INTO PLANNING AND MANAGEMENT PROCESSES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner will understand how to think in terms of sustainable systems thinking, and will integrate a systems approach into planning and management processes. The learner will use these concepts when developing a whole farming system.

Competent learners will be conversant with agricultural regulations and aspects of safety, to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standard “Plan and maintain environmentally sound agricultural processes” (NQF 4) or equivalent.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate understanding of “hard” (biophysical) and “soft” (human) systems.

2. Demonstrate an understanding of the concept of sustainability as a trade-off between productivity and the conservation of resources.
 3. Use the systems approach to design interactive soil, plant and animal management.
 4. Monitor and re-evaluate sustainability of whole farming systems.
 5. Develop a comprehensive plan for a whole farming system.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate understanding of “hard” (biophysical) and “soft” (human) systems.

Range: In the context of suitable farming systems:

- Definitions (biophysical or natural, and human-managed systems).
- Elements (economy, farm family, animals, plants, soil fauna, minerals).
- Understanding of dynamics (interactions of elements and systems).
- Hard and soft systems (biological limitations, management goals).

Assessment criteria:

- 1.1 The definition of a system is explained.
- 1.2 In-depth understanding of systems dynamics is demonstrated.
- 1.3 Practical understanding of hard (biophysical) and soft (human) systems, and their application to sustainable development, is shown.

2. Demonstrate an understanding of the concept of sustainability as a trade-off between productivity and the conservation of resources.

Range: Definitions of sustainability:

- Social sustainability (participation, appropriateness and ownership).
- Economic sustainability (profit, productivity, marketability).
- Environmental sustainability (biodiversity, conservation, long-term productivity, animal welfare).
- Political sustainability (key stakeholders and policy-makers).
- Contexts of legal environment.

Assessment criteria:

- 2.1 A deep understanding of the links between sustainability and dynamic systems thinking is shown.
- 2.2 Information and feedback from systems monitoring to adaptive management aimed at increasing sustainability are applied.
- 2.3 The ability to increase awareness of sustainability and systems thinking in agricultural practice, among a wide range of stakeholders is demonstrated.
- 2.4 Familiarity with agricultural and related environmental legislation is shown, and full responsibility is taken for legal implications.

3. Use the systems approach to design interactive soil, plant and animal management.

Range: Ensure an awareness of:

- Long term soil fertility.
- Inter-relations of plant communities and soils.
- Business plans including human resources and capacity building.
- Water management and production.
- Role of animals in farming systems.
- Practical action plan for implementation (time frame & budgets).

Assessment criteria:

- 3.1 Strengths and weaknesses regarding internal factors relating to sustainability within farming systems are analysed.
- 3.2 Impacts of external opportunities are understood.
- 3.3 The ability to communicate and influence others regarding impacts of long-term internal- and external factors on sustainability is shown.
- 3.4 The ability to develop a strategic management plan is shown.
- 3.5 An action plan, which accesses resource organisations, is designed.

4. Monitor and re-evaluate sustainability of whole farming systems.

Range: Develop a plan, which links activities, budgets and strategic objectives to long-term goals of sustainability.

Assessment criteria:

- 4.1 Monitoring systems for crop and animal production, natural resource attributes and social dynamics are designed.
- 4.2 The way indicators are identified and verified is understood.
- 4.3 Advanced managerial information is designed and generated (identify gaps and motivate others to apply corrective measures).
- 4.4 Seasonal outcomes are analysed and applied to long-term strategic interventions aimed at increasing sustainability.

5. Develop a comprehensive plan for a whole farming system.

Range: Describe a local farming system.

- Identify indicators and management objectives.
- Measurement of indicators.
- Awareness of appropriate strategies.
- Link social, environmental and economic factors into a plan.

Assessment criteria:

- 5.1 Several common farming systems and their inter-relatedness are described.
- 5.2 Timely intervention programmes are designed based on understanding of the progression of seasonal processes in enhancing productivity.
- 5.3 Verifiable indicators are evaluated and appropriate sets of indicators are selected to measure sustainability of a system.
- 5.4 An appropriate plan is drawn up for a given farming situation, which takes environmental, social, economic and legal perspectives into account.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 to 5.
2. **Self-organisation and management** relates to specific outcomes 1 to 5.
3. **Information evaluation** relates to specific outcomes 1 to 5.
4. **Communication** relates to specific outcomes 1 to 5.
5. **Use science and technology** relates to specific outcomes 1 to 5.
6. **Inter-relatedness of systems** relates to specific outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Communication with farmers, service providers, researchers, NGO's, clients and market agents.
2. Compiling simple reports and writing basic business letters.
3. Identification and recognition of the ecological, social and economic environment – locally, regionally and internationally. This pertains to local ecological drivers such as H-cycle, C-cycle, etc., soil diversity, weather and climate patterns, bio diversity, etc.
4. Recognising the income sources and cost factors economically – local market sources should receive specific attention. The above should be applied to the regional and international environment with specific attention to business and organisations operating and impacting locally.
5. Systems approach to life – definitions of systems like ecosystems, the importance of agriculture as an “open system”, the dynamics of role players within these systems.
6. The interrelationships between the various regional and international systems should be completed and acknowledged.
7. Understanding the concept of sustainability and its applicability to agriculture and conservation.
8. Recognising the importance of the relatedness between social, ecological and economic environment as well as the identification of risk factors at all levels.
9. The legal environment within the farming sphere should be understood.
10. Knowledge on the holistic qualification and qualification of the whole farming system. All income sources, cost-factors, human influences and actors should be recognised.
11. The legal environment as well as the economic and biological environment should be recognised in order to be aware of present and potential risks.

12. A system approach used to plan and monitor productivity from level through the acknowledgement of the interrelatedness of ecosystems and its biological actors with the economic and social environments. This knowledge should be recognised within business plans enabling the learner to understand the rationale of a business plan.
13. Awareness and understanding of how to measure the productivity of farming systems should be demonstrated. This includes the identification of indicators (social, economic, ecological) that should be monitored in order to produce timely managerial information in order to plan better. A simple managerial information system should be available in order to make rational decisions at local level.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.2.1**AGRI-BUSINESS**

TITLE : **OPTIMISE AND INTEGRATE VARIOUS FARMING SYSTEMS AND TRENDS WITHIN RELATED ENTERPRISES**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 5

CREDIT : 10

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

Qualifying learners are capable of optimising and integrating various farming systems and trends within related enterprises. In addition they will be well positioned to extend their learning and practice into other areas of agriculture, specifically integrated crop production and animal production systems. This training will benefit the profession by equipping learners with adequate skills to have input into the optimisation and integration of farming systems to improve productivity and performance. This unit standard is applicable to all agricultural animals and plant production systems.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 4: Implement, evaluate and adjust factors influencing agricultural enterprises

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Optimise and integrate the natural resources required for the relevant farming systems and enterprises.
 2. Plan and optimise infrastructural requirements for the relevant enterprise system.
 3. Optimise and maintain stock required for the relevant enterprises.
 4. Innovate and plan production systems within relevant enterprises.
 5. Plan and maintain a harvest system within relevant farming systems and enterprises.
 6. Plan and maintain post harvest systems within relevant farming enterprise.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Optimise and integrate the natural resources required for the relevant farming systems and enterprises.

Range: Natural resources include but are not limited to soil, water, climate, vegetation, topography and other

Assessment criteria:

- 1.1 Soil characteristics and soil analysis are optimised and integrated to maintain production within the enterprise or system.
- 1.2 Water characteristics and water analysis is evaluated and integrated to maintain production within the enterprise or system.
- 1.3 Weather trends must be evaluated and integrated into the farming system or enterprise.
- 1.4 Processes are optimised and maintained according to vegetation potential in the farming system or enterprise.

2. Plan and optimise infrastructural requirements for the relevant enterprise system.

Range: Infrastructural requirements include but are not limited to fencing, housing, and water supply, electricity, handling facilities, access and other.

Assessment criteria:

- 2.1 Infrastructure for the relevant enterprise or system must be planned and optimised considering the function of the infrastructure.
- 2.2 Required infrastructure must be determined according to need and integrated into the enterprise or system.
- 2.3 Relevant regulations and legislation is evaluated and integrated into the planning of infrastructure.

3. Optimise and maintain stock required for the relevant enterprises.

Range: All livestock and crops required for the relevant enterprises.

Assessment criteria:

- 3.1 Production deficiencies are determined and maintained to optimise system and enterprise production.
- 3.2 Quality of stock according to the characteristics of specific livestock or crops is considered and optimised.
- 3.3 The need of the livestock and crops must be evaluated and optimised into the enterprise or system.
- 3.4 The suitability of resources are optimised and maintained for specific livestock and crop enterprise.

4. Innovate and plan production systems within relevant enterprises.

Range: All livestock and crops required for the relevant enterprise.

Assessment criteria:

- 4.1 Production cycle systems are innovated and planned to be integrated into the farming system.
- 4.2 Production systems are innovated and planned according to observation reports.
- 4.3 Production records must be planned and maintained for the production system or enterprise.
- 4.4 Production systems or enterprises are optimised and planned according to the evaluation of market information.

5. Plan and maintain harvest system within relevant farming systems and enterprises.

Range: All livestock and crops required for the relevant enterprise.

Assessment criteria:

- 5.1 Harvest systems are planned and maintained according to requirements for successful harvesting.
- 5.2 Harvest practices are planned and maintained for the particular system and enterprise.
- 5.3 Good health and hygiene principles for harvesting practices are planned and maintained.
- 5.4 Regulations and legislation governing health and hygiene are interpreted and included in the planning.
- 5.5 Products to be harvested must be planned and maintained according to quality standards that are prescribed.

6. Plan and maintain post harvest systems within relevant farming enterprise.

Range: All livestock and crops required for the relevant enterprise.

Assessment criteria:

- 6.1 Post harvest systems are planned and maintained according to the requirements for successful harvesting.
- 6.2 Post harvest practices are planned and maintained for the particular system and enterprise.
- 6.3 Good health and hygiene principles for harvesting practices are planned and maintained.
- 6.4 Regulations and legislation governing health and hygiene are interpreted and included in the planning.
- 6.5 Products to be harvested must be planned and maintained according to quality standards that are prescribed.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.

- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 6.
2. **Teamwork:** relates to specific outcomes 1 to 6.
2. **Self organisation and management:** relates to specific outcomes 1 to 6.
4. **Information evaluation:** relates to specific outcomes 1 to 6.
5. **Communication:** relates to specific outcomes 1 to 6.
6. **Science and Technology:** relates to specific outcomes 1 to 6.
7. **World as a set of related systems:** relates to specific outcomes 1 to 6.
8. **Self-development:** relates to specific outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Role and function of soil and water samples, weather information, vegetation, infrastructure, breed characteristics, production cycles, records, markets, health and hygiene within production systems (agricultural enterprise as a whole).
2. Attributes, characteristics and properties of vegetation, infrastructure, weather, production cycles, markets within production processes.
3. Observation of the effects of weather patterns, soil and water characteristics, market trends, breed and crop characteristics / performance, health and hygiene condition, infrastructural conditions, vegetation quality and quantity influencing production systems e.g. impact of drought, on enterprises.
4. Purpose of vegetation, infrastructure, weather, production cycles, markets within production systems.
5. Implications of ineffective practices on production systems.

6. Production systems within marketing and global environment.
7. Regulations and legislation related to production systems within a global environment e.g. imports/exports.
8. Describing various production processes as an integral part of the production system.
9. Purpose of this training to develop the planning and integration skills of the learner in various enterprises.
10. Procedures, rules and principles are covered related to enterprises, systems and practices.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.2.2**AGRI-BUSINESS**

TITLE	:	ANALYSE AND INTERPRET THE FINANCIAL STATEMENTS AND PHYSICAL RECORDS IN AN AGRI-BUSINESS TO GENERATE MANAGERIAL INFORMATION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to compile, analyse and interpret the financial statements for an agri-business in order to generate sound managerial information. In addition the learner will be well positioned to extend his/her learning and practice into areas of information management and sharing. The profession will benefit from this since timely and accurate assessments of data is necessary to generate sound managerial information needed for rational decision-making at all levels.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to financial support.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 4: Prepare a whole farm budget and establish a proper integrated information system for an agri-business.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Use financial and physical information to compile financial statements and physical data to compile physical records.
2. Conduct a proper analysis of the financial statements and physical records of an agri-business.
3. Compare financial and economic criteria with historical results and deduct the necessary managerial information.
4. Set objectives for the different ratios and do an interpretation of the different ratios.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Use financial and physical information to compile financial statements and physical data to compile physical records.

Range: Integrate financial information into working management information documents.

Financial records – balance sheet, income statement, cash flow statement.

Physical records – inventory, rainfall records, labour records, mechanisation records.

Assessment criteria:

- 1.1 The possession of a broad knowledge base is demonstrated regarding the independent compilation of financial statements.
- 1.2 The possession of a broad knowledge base is demonstrated regarding the independent compilation of physical records.
- 1.3 The ability to manage the delegated inputs into these records and financial statements from colleagues/employees is demonstrated.

2. Conduct a proper analysis of the financial statements and physical records of an agri-business.

Range: Rand/ha, Rand/ton, liquidity ratios, solvency ratios, growth in equity, efficiency ratios, net farm income/R100 capital investment, Net farm income/R100 labour costs, personnel turnover ratio, labour costs as percentage of total costs, fuel consumption etc.

Assessment criteria:

- 2.1 The ability to select, apply and understand an appropriate financial analysis tool in order to do a proper analysis of the financial statements is demonstrated.
- 2.2 The ability to select, apply and understand an appropriate analysis tool in order to do a proper analysis of the physical records is demonstrated.
- 2.3 An ability and understanding of the accepted norms/benchmarks for each analysis tool as selected in 2.1 and 2.2 are demonstrated.
3. Compare financial and economic criteria with historical results and deduct the necessary managerial information.

Range: Rand/ha, Rand/ton, liquidity ratios, solvency ratios, growth in equity, efficiency ratios, net farm income/R100 capital investment, Net farm income/R100 labour costs, personnel turnover ratio, labour costs as percentage of total costs, fuel consumption etc.

Assessment criteria:

- 3.1 The ability to independently compare solvency ratios with historical figures and bench-mark figures and the ability to make rational deductions from the present year's performance is demonstrated.
- 3.2 The ability to independently compare liquidity ratios with historical figures and bench-mark figures and the ability to make rational deductions from the present year's performance is demonstrated.
- 3.3 The ability to independently compare efficiency ratios with historical figures and bench-mark figures and the ability to make rational deductions from the present year's performance is demonstrated.
- 3.4 The ability to independently compare the growth in equity ratios with historical figures and bench-mark figures and the ability to make rational deductions from the present year's performance is demonstrated.
- 3.5 The ability to independently compare other financial ratios with historical figures and bench-mark figures and the ability to make rational deductions from the present year's performance is demonstrated.
- 3.6 The ability to independently compare at least an economical ratio for each of rainfall, labour and mechanisation (physical records) with historical figures and bench-mark figures and the ability to make rational deductions from the present year's performance is demonstrated.
4. Set objectives for the different ratios and do an interpretation of the different ratios.

Assessment criteria:

- 4.1 The ability to interpret all financial and economic ratios effectively and correctly is demonstrated.
- 4.2 The ability to independently determine and take full responsibility for the determination of appropriate objectives for each is demonstrated.

- 4.3 The ability to take full responsibility for the preparation of financial and economic reports that stipulate both positive and negative aspects of the financial and economic performance for a specific financial year is demonstrated.
- 4.4 The ability to make rational suggestions on the financial and economic improvement of the business is demonstrated.
- 4.5 The ability to verbally report the financial and economic performance of the agribusiness for the specific financial year is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-4.
2. **Self-organisation and management** relates to specific outcomes 1-4.
3. **Information evaluation** relates to specific outcomes 1-4.
4. **Use science and technology** relates to specific outcomes 1-4.
5. **Inter-relatedness of systems** relates to specific outcomes 1-4.
6. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Financial information.
2. Economic/physical information/records.
3. Analysis of financial information.
4. Analysis of physical data.
5. Interpretation of information.
6. Names and functions of different financial ratios.
7. Ability to determine bench-marks.
8. Ability to compare with historical figures and bench-marks.
9. Generating managerial information.
10. Written communication of financial and economic performance.
11. Verbal communication of financial and economic performance.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.2.3**AGRI-BUSINESS**

TITLE	:	IMPLEMENT AND MANAGE HUMAN RESOURCE AND LABOUR RELATIONS POLICIES AND ACTS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to analyse policy, procedures, agreements and conditions of employment applicable at the workplace environment and take the full responsibility to optimise and maintain efficiencies in policies. The learner should be able to identify trends and have the ability to implement acceptable systems to deal with this.

In addition the learner will be well positioned to extend the learning into systems thinking and the motivation of a productive workforce at all levels. The profession and agribusiness will benefit from higher productivity levels and a positive external image projected through this.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to human resources.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 4: Assume co-responsibility and participation in human resources management.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Be responsible for the development and maintenance of effective human relation policies and practices.
 2. Be responsible for the drafting of job descriptions, recruitment, selection panels, and employment contracts.
 3. Be responsible for the institute and facilitation of disciplinary policies, actions and hearings.
 4. Develop, facilitate and monitor disciplinary policy, process and procedures.
 5. Institute performance evaluation committees and manage the performance evaluation process.
 6. Participate in the implementation of applicable labour legislation.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Be responsible for the development and maintenance of effective human resource policies and practices.

Range: Include policy and procedures on employment equity, skills development, grievance procedures, performance evaluation, remuneration negotiations, disciplinary hearings, etc.

Assessment criteria:

- 1.1 The ability is demonstrated to take responsibility to develop and maintain human resource policy on employment equity.
- 1.2 The ability is demonstrated to take responsibility to develop and maintain human resource policy on skills development.
- 1.3 The ability is demonstrated to take responsibility to develop and maintain human resource policy on performance evaluation.
- 1.4 The ability is demonstrated to take responsibility to develop and maintain human resource policy on recruitment and selection criteria.
- 1.5 The ability is demonstrated to take responsibility to develop and maintain human resource policy on training.
- 1.6 The ability is demonstrated to take responsibility to develop and maintain human resource policy remuneration.

2. Be responsible for the drafting of job descriptions, recruitment, selection panels, and employment contracts.

Range: Terms and conditions of employment include starting date and probation period, duration of employment, remuneration, notice period, leave (sick leave, family responsibility leave, maternity, annual/vacation), hours of work and overtime, other benefits and deductions.

Assessment criteria:

- 2.1 The ability to take responsibility to organize and participate in the recruitment process is demonstrated.
- 2.2 The ability to take responsibility to organise and participate in selection panels is demonstrated.
- 2.3 The ability to participate in salary negotiations is demonstrated.
- 2.4 The ability to establish employment conditions of a particular category of employment in accordance with relevant policy is demonstrated.
- 2.5 The ability to reflect applicable terms and conditions of employment for the relevant category of employment in the employment contract is demonstrated.
- 2.6 The ability to suitably cover exceptional terms and conditions in the contract of employment if applicable is demonstrated.
- 2.7 Contracts of employment are submitted for approval to the authorised person(s).
- 2.8 Categories of employment are established correctly in accordance with the organisation structure and organisational needs.

3. Be responsible for the institute and facilitation of disciplinary policies, actions and hearings.

Range: Responsibility and participation in organisation disciplinary policy, procedures and disciplinary code of conduct. Disciplinary action is accurately recorded according to organisation disciplinary procedures.

Assessment criteria:

- 3.1 The ability to participate in disciplinary hearings is demonstrated.
- 3.2 The ability to identify and classify transgression(s) is demonstrated.
- 3.3 The ability to implement procedures to handle and implement offences is demonstrated.
- 3.4 Proof that allegations or charges are correctly analysed and adequately investigated is demonstrated.
- 3.5 The fact that all relevant information is requested from the employer is demonstrated.
- 3.6 The fact that the employee and witnesses are properly prepared for the hearing is demonstrated.
- 3.7 The fact that the employee's case is sufficiently and effectively presented is demonstrated.
- 3.8 The fact that witnesses are appropriately questioned and cross-questioned is demonstrated.
- 3.9 The fact that pleas in mitigation are properly prepared and presented is demonstrated.
- 3.10 The fact that relevant appeals are lodged in terms of the disciplinary procedure is demonstrated.

4. Develop, facilitate and monitor disciplinary policy, process and procedures.

Assessment criteria:

- 4.1 The fact that the disciplinary policy and procedures adhere to legislation requirements is demonstrated.
- 4.2 The fact that the disciplinary policy and procedures contain agreed timeframes for resolution of issues is demonstrated.
- 4.3 The fact that the disciplinary policy and procedures are aligned to the type of business and culture of the organisation is demonstrated.
- 4.4 The fact that effective communication structures and media are utilised to communicate the disciplinary policy and procedures to all relevant stakeholders is demonstrated.
- 4.5 The fact that appropriate and effective training techniques are established to ensure that the disciplinary policy and procedure are easily accessible to all stakeholders is demonstrated.
- 4.6 The fact that timeframes are established to ensure regular review of the effectiveness of the disciplinary policy and procedures is demonstrated.
- 4.7 The fact that the disciplinary policy and procedures are amended in accordance with review findings is demonstrated.

5. Institute performance evaluation committees and manage the performance evaluation process.

Range: Performance evaluation policy and procedures, performance evaluation moderating committees, feedback.

Assessment criteria:

- 5.1 The active involvement in the application of the performance evaluation process is demonstrated.
- 5.2 Involvement in the training and communication of the performance evaluation process is demonstrated.
- 5.3 The ability to evaluate each employee according to procedures is demonstrated.
- 5.4 The ability to organise moderating committee if according to organisation policy is demonstrated.
- 5.5 The ability to ensure that all employees receive the necessary feedback to ensure transparency is demonstrated.

6. Participate in the implementation of applicable labour legislation.

Range: Employment Equity Act, BCEA, LRA, SDA, SDL, OHSACT, COIDA.

Assessment criteria:

- 6.1 Labour legislation according to workplace procedures are communicated to all levels and implemented.
- 6.2 Employees and managers are encouraged to develop their skills.
- 6.3 The ability to motivate employees to adhere to safety regulations is demonstrated.
- 6.4 The ability to enforce the employment equity principles at all levels of the organisation is demonstrated.
- 6.5 The ability to identify trends in employment and apply corrective systems to bring them into line with legislation and company procedures is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-6.
2. **Teamwork:** relates to specific outcomes 1 – 6.
3. **Self-management:** relates to specific outcomes 1 – 6.
4. **Interpreting Information:** relates to specific outcomes 1-6.
5. **Communication:** relates to specific outcomes 1-6.
6. **Use Science and Technology:** relates to specific outcomes 1-6.
7. **The world as a set of related systems:** relates to specific outcomes 6.
8. **Self-development:** relates to specific outcomes 1 – 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic application of contract law.
2. Principle of evidence gathering and presentation of evidence and arguments.
3. Organisational practice.
4. Relevant Labour legislations and its implementation e.g. BCEA, LRA, EEA, SDA, OHSACT.
5. Relevant legal requirements and processes.
6. Consultation mechanism.
7. Processes to develop policies and procedures.
8. Implementation of plans e.g. EE Plan, Work skill plan, implementation of work skills plan, etc.
9. Implications of not following labour legislations.
10. Rules, policies and procedures e.g. Disciplinary, HIV/Aids, grievance, recruitment and selection, training, etc.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.2.4**AGRI-BUSINESS**

TITLE	:	MANAGE AN INPUT CHAIN
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	6
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to manage, control an agricultural input chain. In addition they will be well positioned to extend their learning and practice into other areas of agriculture.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to inputs, resources and sourcing.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 4: Execute sustainable resource use and quality control.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Plan the flow chain of agricultural inputs.
 2. Implement a plan on the flow of agricultural inputs.
 3. Schedule Human Resources to attend to inputs.
 4. Evaluate and resolve eventualities that emerge during the flow of agricultural inputs.
 5. Give accurate reports on the agricultural input flow chain.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Plan the flow chain of agricultural inputs.

Assessment criteria:

- 1.1 The basic principles involved in management are explained
(Range: Management includes but is not limited to planning, organising, leading and control)
- 1.2 The peculiar characteristics of agricultural inputs (bulky, critical, and quality) are identified.
- 1.3 The flow chain of particular agricultural inputs is justified and explained,

2. Implement a plan on the flow of agricultural inputs.

Assessment criteria:

- 2.1 An agricultural input flow plan is interpreted and critically evaluated.
- 2.2 Resources for the implementation of an agricultural input flow plan are organised.
- 2.3 An agricultural input flow plan is implemented.

3. Schedule Human Resources to attend to inputs.

Assessment criteria:

- 3.1 Legislation regarding managing of human resources is demonstrated.
- 3.2 The hierarchy of needs is interpreted and adapted to.
- 3.3 The ability to motivate staff is demonstrated.
- 3.4 Complaints are judged and solutions are decided on.
- 3.5 Discipline is enforced in the workplace.

4. Evaluate and resolve eventualities that emerge during the flow of agricultural inputs.

Range: Eventualities may include but are not limited to delayed delivery, under supply, unavailability of stock, staff disputes, shrinkage and spoilage, etc.

Assessment criteria:

- 4.1 Problems of undersupply are related and rectified.
 - 4.2 An incident is adapted or managed to prevent delayed delivery of agricultural inputs.
 - 4.3 An incident of stock unavailability is related to.
 - 4.7 Solutions to staff disputes are recommended.
 - 4.8 Systems are planned or implemented to reduce shrinkage and spoilage.
- 5 Give accurate reports on the agricultural input flow chain.

Assessment criteria:

- 5.1 Records on stock (agricultural inputs) are ascertained and interpreted.
- 5.2 Orders for further purchases are interpreted and inferred from.
- 5.3 Trends in agricultural input supply are predicted.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 5.
2. **Teamwork:** relates to specific outcomes 1 to 5.
3. **Self-management:** relates to specific outcomes 1 to 5.
4. **Interpreting Information:** relates to specific outcomes 1-5.
5. **Communication:** relates to specific outcomes 1 to 5.
6. **Use Science and Technology:** relates to specific outcomes 1-5.
7. **The world as a set of related systems:** relates to specific outcomes 1 to 5.
8. **Self-development:** relates to specific outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The functions involved in the management of agricultural input.
2. Understanding systems related to problems or eventualities in processes.
3. The purpose of the understanding of input management.
4. Managing systems such as agricultural input systems.
5. Being aware of and ensuring implementation of relevant legislation.
6. Communication skills.
7. Following rules and processes instilled to control systems.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 5.2.5**AGRI-BUSINESS**

TITLE	:	INTEGRATE MARKETING PLANS WITH THE BUSINESS PROCESS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to take responsibility for the integration of the marketing component as integral components of the total agricultural business.

In addition the learner will be well positioned to extend their learning and practice of integration into the broader managerial processes. The profession will benefit from the ability of the learner to understand individual systems as well as the integration of one system with another.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to marketing.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 4: Participate in the development and management of an agricultural marketing plan.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Monitor the marketing environment and determine variables and critical success factors for marketing of all agricultural commodities within the agribusiness.
 2. Identify and analyse market opportunities for all agricultural commodities in the agribusiness.
 3. Identify and develop market structures strategies for all agricultural commodities in the agribusiness.
 4. Integrate the marketing function into the total business plan for all agricultural commodities of an agribusiness.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Monitor the marketing environment and determine variables and critical success factors for marketing of all agricultural commodities within the agribusiness.

Range: External, political, economic, social, technology.

Internal, marketing value chain components like promotion, packaging, etc.

Assessment criteria:

- 1.1 The ability to take full responsibility to identify and optimise external marketing influences, risks and uncertainties for all agricultural commodities within the agribusiness is demonstrated.
- 1.2 The ability to take full responsibility to identify and optimise internal marketing influences, risks and uncertainties for all agricultural commodities is demonstrated.
- 1.3 The ability to optimise and maintain efficiency throughout the whole marketing plan, recognising all trends and systems within the sphere of the marketing area is demonstrated.

2. Identify and analyse market opportunities for all agricultural commodities within the agribusiness.

Range: Livestock and crop enterprises, pluriactivity and internal and external marketing strengths and opportunities

Assessment criteria:

- 2.1 The ability to take full responsibility for the identification and optimisation of marketing opportunities for all agricultural commodities within the agribusiness is demonstrated.

- 2.2 The ability is demonstrated to take full responsibility for the identification and maintenance of updated characteristics, critical success factors of alternative markets for all agricultural commodities within the agribusiness.
- 2.3 The ability is demonstrated to optimise the appraisal of the interplay of factual and behavioural aspects of alternative markets for all agricultural commodities within the agribusiness.
3. Identify and develop market structure strategies for all agricultural commodities within the agribusiness.

Range: Packaging, pricing, communication, distribution, promotion.

Assessment criteria:

- 3.1 The ability is demonstrated to take responsibility and to be actively involved with the identification and development of comprehensive marketing strategies for all agricultural commodities within the agribusiness.
- 3.2 The ability is demonstrated to assess and optimise critical success factors in the marketing value chain of all agricultural commodities within the agribusiness.
- 3.3 The ability is demonstrated to develop, assess, optimise and maintain value chain strategies for all agricultural commodities within the agribusiness.
4. Integrate the market function into the total business plan for all agricultural commodities within the agribusiness.

Range: Marketing integrated into inputs, production, and logistics planning.

Assessment criteria:

- 4.1 The ability is demonstrated to partake in the responsibility to partake in the facilitation process to integrate the marketing plan within the agribusiness's general business plan.
- 4.2 The ability is demonstrated to maintain efficiencies within the integration process of the marketing plan within the overall business plan.
- 4.3 The ability is demonstrated to optimise efficiency within the integration process of the marketing plan within the overall business plan.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1-4.
2. **Teamwork:** relates to specific outcomes 1-4.
3. **Self-management:** relates to specific outcomes 1-4.

4. **Interpreting Information:** relates to specific outcomes 1-4.
5. **Communication:** relates to specific outcomes 1-4.
6. **Use Science and Technology:** relates to specific outcomes 2 and 4.
7. **The world as a set of related systems:** relates to specific outcome 4.
8. **Self-development:** relates to specific outcome 2.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- 1 The development of a business plan.
- 2 The development of a marketing plan.
- 3 The integration of processes and efficiencies.
- 4 The maintenance of processes and efficiencies.
- 5 The optimisation of processes and efficiencies.
- 6 The application of strategic and systems thinking within the integration process.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.2.6**AGRI-BUSINESS**

TITLE	:	DEVELOP A PRODUCTION AND STRATEGIC PLAN FOR THE AGRICULTURAL BUSINESS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	Draft
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to understand the influence that markets and technology have on the production process and will be able to develop a strategic plan for the agricultural processing activities in the agricultural business environment. In addition they will be well positioned to extend their learning and practice into other areas of management in business and agricultural marketing to the advantage of the industry.

Learners will understand the importance of the application of business principles in agricultural production with specific reference to production/conversion.

They will be able to operate farming practices as businesses and will gain the knowledge and skills to move from a subsistence orientation to an economic orientation in agriculture. Farmers will gain the knowledge and skills to access mainstream agriculture through a business-orientated approach to agriculture.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

- NQF 4: Execute sustainable resource use and quality control.
- NQF 3: Explain the application of marketing principles within an alternative and dynamic agricultural marketing environment.
- NQF 4: Prepare a whole farm budget and establish a proper integrated information system for an agri-business.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

- 1 Gather intelligence, information and data related to production processes, technology and markets in agriculture.
- 2 Evaluate the influence that market trends have on the production process in the agricultural business environment.
- 3 Evaluate the influence that technology has on the production process in the agricultural business environment.
- 4 Develop a strategic production plan.
- 5 Develop and implement a strategic plan.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Gather intelligence, information and data related to production processes, technology and markets in agriculture.

Range: Agricultural intelligence includes but is not limited to market trends, weather (historical and predicted) foreign exchange fluctuations, business intelligence (including trading, health, legal, nutritional, personnel and cost related information) from a variety of sources

Range: Information sources include but are not limited to electronic media (radio, Television, internet, email), printed media (books, newspapers, magazines) personal communication within and without the sector, the industry or the enterprise.

Assessment criteria:

- 1.1 The ability is demonstrated to access a variety of relevant media to gather information related to technology, processes and markets in agriculture and related sectors.
- 1.2 The ability is demonstrated to analyse data, information and intelligence for relevancy and appropriateness.
- 1.3 Information is prepared from the data and intelligence collected to relate to the requirements of the enterprise.
- 1.4 The ability is demonstrated to use the prepared information in the making of appropriate decisions within the enterprise.

2. Evaluate the influence that market trends have on the production process in the agricultural business environment.

Range: Market trends refer to but are not limited to special dates on the calendar, seasonality of products and demands, prices etc.

Assessment criteria:

- 2.1 Understanding about the environment in which agricultural production and processing takes place, by identifying the market in which it will operate and identifying market trends that will have an effect on production, is demonstrated.

(Range: The environment refers to but is not limited to the markets, sources of input, finance sources, government.)

- 2.2 Markets for market trends, and marketing plans to determine the desired level of production, are evaluated. Corrective actions are taken and improvements are made to ensure that production is as desired.

(Range: Desired levels of production refer to but are not limited to the quality and quantity demanded).

(Range: Corrective actions refer to possible changes in the production plan or process to improve the product).

3. Evaluate the influence that technology has on the production process in the agricultural business environment.

Range: Technology refers to but is not limited to machinery, equipment, information technology, advances in financial technology, communications, etc.

Assessment criteria:

- 3.1 Existing technology used in the production process is evaluated and continuously compared with new technological developments.

- 3.2 Technological advances' influences on the current production process are analysed.

(Range: Influence refers to but is not limited to alternative application of inputs, increase in outputs, restrictions in budgets, or other resources, etc.)

- 3.3 The expected lifetime of machinery and equipment is determined, a plan that can extend the lifespan of machinery is developed and implemented and replacement time of machinery and equipment is determined.

(Range: Expected lifetime refers to but is not limited to the number of years or hours that the machinery will be efficiently operational).

- 3.4 A machinery maintenance plan for the use of machinery in the agricultural process is designed.

(Range: Maintenance plan refers to but is not limited to regular inspections, lubrication, repair, and replacement).

- 3.5 The purchasing, lease or hiring, replacement or repair costs of machinery and equipment are compared to determine the most cost effective manner in obtaining the required machinery and equipment.

(Range: Comparisons should use but are not limited to net present value budgets, bank and interest rate negotiations, etc.)

4. Develop a production plan.

Range: The production plan should incorporate all the aspects of inputs, resources, processes, procedures, markets and technology.

Assessment criteria:

- 4.1 A plan that will lead to the legal production of products that will meet the market requirements within the agricultural business environment is developed.

(Range: Legal refers to but is not limited to the limitations of all relevant health, product standards, food dinks and cosmetics, toxic substance use, business and production related Acts and the additional regulations, local bylaws and other legal requirements).

- 4.2 The implementation and management of the production plan are planned for.

(Range: The implementation should include the availability of the required inputs (raw inputs, labour, capital, other resources), the appropriateness of the production place, time when the various activities should take place).

(Range: Management of the production plan incorporates all the managerial and additional management tasks).

5. Develop and implement a strategic plan.

Range: Strategic plan refer to but is not limited to the long term planning of the production process, the identification of opportunities and threats with in the agricultural processing environment and future changes that may be required in agricultural business.

Assessment criteria:

- 5.1 The total environment, in which the agricultural business operates, is evaluated.

(Range: Environment refers to but is not limited to local, national and international activities, developments in the markets, political, social-economic development at a micro, meso and macro level).

- 5.2 An understanding is demonstrated of the concept of the SWOT analyses by conducting the SWOT analyses with in the agricultural business environment.

(Range: SWOT analyses refer to identifying the Strengths and Weaknesses with in the business itself and Opportunities and Threats within the environment it operates in. This methodology aims to convert Threats into opportunities and Weaknesses into Strengths).

(Range: Environment refers to but is not limited to local, national and international activities, developments in the markets, and political, social-economic development at a micro, meso and macro level).

- 5.3 All the steps that should be followed with the development of a strategic plan are identified.

(Range: The steps should include but are not limited to identifying problems, opportunities, assessing the significance, considering actions, obtaining information, making decisions, implementation and allocating responsibilities).

- 5.4 A strategic plan is developed to legally lead to the production of products that will meet market requirements in the agricultural business environment.

(Range: Strategic plan should include but is not limited to setting objectives, identify opportunities, stating methods how problems will be dealt with etc.)

(Range: Legal refer to but is not limited to the limitations of all relevant health, product standards, food dinks and cosmetics, toxic substance use, business

and production related Acts and the additional regulations, local bylaws and other legal restrictions).

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-5.
2. **Teamwork** relates to specific outcomes 1-5.
3. **Self-organisation and management** relates to specific outcomes 1-5.
4. **Information evaluation** relates to specific outcomes 1-5.
5. **Communication** relates to specific outcomes 1-5.
6. **Use science and technology** relates to specific outcomes 1-5.
7. **Inter-relatedness of systems** relates to specific outcomes 1-5.
8. **Self-development** relates to specific outcomes 1-5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Market trends.
2. The effect of technological improvements.
3. Steps and purpose for compiling strategic plans.
4. Intelligence gathering.
5. Management skills at all levels.
6. The purpose of understanding the production and conversion process.
7. Planning tools and methodologies.
8. Implementation strategies.

SUPPLEMENTARY INFORMATION

NOTES

END-

LEVEL 5.3.1**AGRICULTURAL PRACTICES**

TITLE : **MANAGE AND CONTROL RESOURCES IN A SUSTAINABLE MANNER**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 5

CREDIT : 5

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to manage and control resources (which include equipment, technology, infrastructure and implements) in a sustainable manner and explain the importance of sound utilisation and maintenance practices. Furthermore, the learner will be able to incorporate this understanding into the design of a replacement policy and seasonal / year work program with reference to equipment, implements, technology and infrastructure of the farm with respect to utilisation, maintenance and replacement.

In addition learners will be well positioned to extend their learning and practice into other areas of agriculture, or to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural regulations and aspects of safety as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Establish a plan for the monitoring, safe use and maintenance of equipment, implements, technology and infrastructure.

NQF 4: Implement a data collection plan.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Modify and/or re-design appropriate equipment and implements to execute a specific agricultural task.
2. Set specifications for equipment / implements that will be suitable for a specific task.
3. Develop a maintenance and storage plan for implements, equipment and infrastructure.
4. Develop and implement safety policies and regulations.
5. Develop appropriate task related technology in the agricultural environment.
6. Design and manage an appropriate seasonal and/or year work program with reference to equipment, implements and technology.
7. Draft a replacement policy with reference to expenditure implications.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Modify and/or re-design appropriate equipment and implements to execute a specific agricultural task.

Assessment criteria

- 1.1 Equipment and/or implements are re-designed or modified to meet the required specifications to execute the task appropriately.
 - 1.2 The reason for selecting a specific modification or adaptation is explained with reference to its appropriateness for the specific task.
 - 1.3 Problems in the newly adapted equipment / implements are identified and resolved.
 - 1.4 Performance and/or cost effectiveness of the adapted equipment / implements are tested, evaluated and quantified.
 - 1.5 Possible solutions to identified problems are recommended.
- 2 Identify and set specifications for equipment / implements that will be suitable for a specific task.

Range: The specifications refer to the specific outputs of the equipment or implement involved, such as the Kilowatt of a tractor, the size of a silo or feed storage bin, a trailer, the strength of pipes, the size of a transformer, and/or building material.

Assessment criteria:

- 2.1 The reasoning behind the recommended specifications is explained.

- 2.2 The contributions by the recommended specifications to the efficient performance of the specified task are explained.
 - 2.3 The recommended specifications are applied and evaluated.
 - 2.4 The selected specifications are compared with alternative settings or specifications.
 - 2.5 Solutions to potential problems are identified.
(Range: Potential problems may include, but are not restricted to, electricity supply, specific oil and grease specifications, refrigeration, and pump sizes).
- 3 Develop a maintenance and storage plan for implements, equipment and infrastructure.

Range: A maintenance plan includes but is not limited to dam inspection, canal leaks, hydraulic equipment, change of shear, fences, welding equipment, brick making, etc.

Assessment criteria:

- 3.1 Problem identification is performed and possible solutions are recommended.
(Range: Problem identification includes but is not limited to safety features, refrigeration, security, accessibility, lighting, aeration, heat dissipations, etc.)
 - 3.2 Evaluation of maintenance program for implements, equipment and infrastructure is performed.
 - 3.3 Maintenance procedures for implements, equipment and infrastructure are developed.
(Range: Maintenance procedures include, but are not limited to, service intervals, regular inspections, and monitoring of efficiency.)
 - 3.4 The storage and maintenance of agricultural implements and equipment is planned and prescribed.
 - 3.5 The efficiency of the utilisation of storage facilities is evaluated and possible recommendations for improvement is made.
 - 3.6 Recommendations for changing the existing maintenance plans and procedures are made and explained.
- 4 Develop and implement safety policies and regulations.

Assessment criteria;

- 4.1 Relevant safety procedures are identified, assessed, evaluated and adapted.
 - 4.2 Changes and improvements on possible or observed problems are recommended.
 - 4.3 Contingency plans related to a safety program are evaluated and adapted.
 - 4.4 Safety equipment is assessed, evaluated and adapted.
 - 4.5 Record keeping of inspections is assessed, evaluated and adapted.
- 5 Develop appropriate task-related technology in the agricultural environment.

Range: Task-related technology refers to the cost-benefit analysis of various applications.

Assessment criteria:

- 5.1 The task-related technology in use is evaluated and compared with current market-related requirements.
Range: market related requirements refer to the post-harvest storage and distribution, such as fruit pack shed.
 - 5.2 Alternative task-related technological applications are identified and analysed according to a cost benefit analysis.
 - 5.3 Recommendations for improved efficiencies are recommended and justified.
 - 5.4 Existing problems in terms of efficiency with task-related technology are identified and possible solutions suggested.
- 6 Design and manage an appropriate seasonal and/or year work program with reference to equipment, implements and technology.

Range: The design of a seasonal / year work program will include an analysis of the scale of the farming enterprise and the infrastructure available. Human resources, infrastructure, equipment and the skill levels may influence the time frame to execute / implement the work program.

Assessment criteria:

- 6.1 A seasonal / year work program is designed.
 - 6.2 The implementation of a seasonal / year work program is supervised.
 - 6.3 The requirements of an activity, such as planting of maize, are compared with the available implements, equipment and infrastructure.
 - 6.4 Available resources are allocated to the planned agricultural activities and processes.
(Range: Planned agricultural activities and processes may include, but are not restricted to, planting, harvesting, packing, storage, and transport.)
 - 6.5 Various concurrent activities are coordinated to ensure cost-effectiveness and that resources are available.
(Range: Concurrent activities may include, but are not restricted to harvesting, drying, transport and packing.)
 - 6.6 The allocation of equipment and implements for the execution of time frame activities is determined.
- 7 Draft a replacement policy with reference to expenditure implications.

Range: A replacement policy includes, but is not limited to, the replacement of worn out, irreparable or normal replacement of equipment, implements, technology or infrastructure.

Assessment criteria:

- 7.1 A replacement policy is drafted.
- 7.2 A cost analysis of the replacement policy is completed.
- 7.3 The replacement policy is evaluated and assessed according to its cost.
- 7.4 Changes or improvements to the replacement policy are recommended.
- 7.5 The sustainability of resource utilisation is assessed.
- 7.6 Programmes are monitored and their sustainability determined.
- 7.7 Possible problems that may be encountered are identified and reported on.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-7.
2. **Teamwork** relates to specific outcomes 1-7.
3. **Self-organisation and management** relates to specific outcomes 1-7.
4. **Information evaluation** relates to specific outcomes 1-7.
5. **Communication** relates to specific outcomes 1-7.
6. **Use science and technology** relates to specific outcomes 1-7.
7. **Inter-relatedness of systems** relates to specific outcomes 1-7.
8. **Self-development:** relates to specific outcomes 1-7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate an in-depth knowledge of:

1. Existing relevant safety regulations and equipment requirements e.g. Legislation related to the primary agricultural sector (e.g. environmental legislation, NOSA, health, toxic chemicals, waste disposal, agricultural chemicals and fertiliser).
2. The utilisation, maintenance and specification equipment and implements.
3. Utilization, maintenance and specification knowledge of specific agricultural task related equipment, implements and technology.
4. Cost analysis.
5. Methods and techniques to determine damaged and faulty equipment.
6. Teamwork and communication.
7. Work program development.
8. Identification and resolving problems related to a work program.
9. The benefits of a well prepared work plan.
10. Personnel management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.3.2**AGRICULTURAL PRACTICES**

TITLE	:	DEVELOP AND IMPLEMENT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN AN AGRICULTURAL SUPPLY CHAIN
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	7
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to develop, implement and optimise a management system for food safety and quality practices in an agricultural supply chain in a context of the learners' own choice.

Competent learners will be fully competent in food safety practices thereby providing the environment for the application of quality practices and thus strengthen agricultural practices in general.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal, plant and mixed farming sub fields. This unit standard focuses on the application of food safety principles in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 3: Apply crop protection and animal health products effectively and responsibly.
NQF 4: Implement a food safety and quality management system in the agricultural supply chain.

NQF 4: Execute sustainable resources and quality control.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Analyse existing food safety and quality management systems in the agricultural environment.
2. Correctly interpret current market requirements in the agricultural supply chain.
3. Develop a food safety and quality management system to meet market requirements within the agricultural supply chain.
4. Plan the implementation of the food safety and quality management system in respect of food safety, production and environmental and social practices in the agricultural environment.
5. Implement and manage a food safety and quality management system in the agricultural supply chain.
6. Evaluate, take corrective action and make improvements to ensure the effectiveness/efficiency of the food safety and quality management system with regard to good agricultural practices (GAP), good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP), whichever is applicable to the workplace.
7. Design a traceability system for operational efficiency in the agricultural supply chain.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Analyse existing food safety and quality management systems in the agricultural environment.

Range: The analysis will include but is not limited to evaluating safety and management systems such as process (including procedures and mechanisms), infrastructure (facilities, tools, and equipment), hazards and risks of contamination (physical, chemical and micro-biological).

Assessment criteria:

- 1.1 Different assessment methods of a safety and quality management system are described.
- 1.2 The method you will implement, and reason, is explained.

- 1.3 How to compare and collate the data obtained to evaluate the system are described. (Range: Data is collected and collated and recommendations are made based on an interpretation of the data.
- 1.4 Findings are discussed and a report is compiled.

2. Correctly interpret current market requirements in the agricultural supply chain.

Range: Market requirements may include but is not limited to information on current agri-trade legislation. Market requirements includes but is not limited to:

- Prerequisite program referring to good agricultural practices (GAP), good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP).
- Procedures to manage food safety and quality practices pertaining to the agricultural supply chain.
- Local legislation.
- International legislation applicable to the country of export.
- Global and agri-market trends.

Assessment criteria:

- 2.1 The way to access information on current market requirements are discussed.
- 2.2 Definitions of market regulatory requirements such as EUREPGAP, BRC, HACCP etc. mean are explained.
- 2.3 The impacts on the activities of the agricultural enterprise are discussed.
- 2.4 The way these requirements are implemented at the local level is discussed.
- 2.5 The way it is implemented at the farm level is explained.
- 2.6 Management (of all these processes) is discussed.

3. Develop a food safety and quality management system to meet market requirements within the agricultural supply chain.

Range: Food safety and quality aspects include but are not limited to traceability, record keeping, varieties (including genetically modified organisms and seed quality), site management, soil history, soil quality and management, fertiliser, irrigation and water quality, crop protection, product handling, waste and pollution management, social welfare, environmental considerations, internal audits.)

Assessment criteria:

- 3.1 The way to develop an integrated food management system, which includes policies, guidelines, procedures, tools and mechanisms on food safety and quality aspects, is discussed.
- 3.2 How such a system will be managed to be effective and deliver what the market requires is discussed.
(Range: Management system aspects include but are not limited to cost effectiveness, flow of information, control measures, personnel, organisational structure, training).

3.3 Such a system is demonstrated and the way it relates to traceability is discussed.

4. Implement and manage a food safety and quality management system in the agricultural supply chain.

Range: The implementation plan includes but is not limited to information flow, development of documentation, upgrading of infrastructure, resources, time scheduling, cost implications, training of personnel etc.

4.1 The development of a plan for the implementation of the food safety and quality management system, with respect to food safety, production, environmental and social practices in the agricultural environment, is described.

4.2 The importance of such a plan for the agricultural enterprise is explained.

4.3 The implementation of this plan is discussed.

4.4 The way it fits in with the broader picture of the market and its requirements with reference to the primary agricultural activities is explained.

5. Evaluate, take corrective action and make improvements to ensure the effectiveness/efficiency of the food safety and quality management system with regard to good agricultural practices (GAP) good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP).

Range: Evaluate, take action and make improvements to the food safety and quality management system includes but is not limited to checking to ensure that what is implemented keeps up with market requirements both local and international.

Assessment criteria:

5.1 The evaluation of the efficiency of the system with respect to both the local and international market is described.

5.2 The conducting of audits to ensure proper functioning of the system is explained.

5.3 The process of being audited for accreditation by an accredited body or organisation is described.

5.4 The importance of this step is discussed.

6. Design a traceability system for operational efficiency in the agricultural supply chain.

Range: A traceability system includes but is not limited to a manual or electronic system which includes record keeping of all aspects of the agricultural enterprise to ensure that any irregularities can be traced back to the farm as well as to the source of the problem.

Assessment criteria:

- 6.1 The different aspects that need to be considered when developing a traceability system are described.
 - 6.2 The dealing with all of these aspects individually and how they fit in to form a part of the whole is discussed.
 - 6.3 The design and implementation a traceability system are explained.
(Range: In relation to the local agricultural market and international agri-trade).
 - 6.4 The testing of such a system for reliability and accuracy is explained.
 - 6.5 A recall system is designed and implemented.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-6.
2. **Teamwork** relates to specific outcomes 1-6.
3. **Self-organisation and management** relates to specific outcomes 1-6.
4. **Information evaluation** relates to specific outcomes 1-6.
5. **Communication** relates to specific outcomes 1-6.
6. **Use of science and technology** relates to specific outcomes 1-6.
7. **Inter-relatedness of systems** relates to specific outcomes 1-6.
8. **Professional development** relates to specific outcomes 1-6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Principles of GAP, GMP, GHP, GEP, GSP, HACCP.
2. International and local trade requirements of GAP, GMP, GHP, GEP, GSP.
3. Good agricultural/manufacturing/processing/health practices.
4. Standard operational procedures of the enterprise in agri-trade environment.
5. Standard operation procedures on the farm.
6. Food borne illnesses.
7. Impact of food safety and quality on trade.
8. Contamination risks.
9. Contamination preventative measures and mechanisms.
10. Risk factors related to food safety.
11. Principles of food safety and quality.
12. Principles of environmental and conservation management.
13. Principles of waste and pollution management.
14. Principles of natural resource management.
15. Local legislation (including OHS, Health and Welfare, BCE, Chemical Act)

16. Good record keeping practices.
17. Agricultural hygiene principles.
18. Effective personal hygiene practices.
19. Processes and procedures of internal audits.
20. Methods of system analysis and evaluation.
21. Needs analyses related to training.
22. Traceability.
23. Role and position of international trade organisations.
24. Management skills.

SUPPLEMENTARY INFORMATION

NOTES

These unit standards form part of the secondary process of the agricultural enterprise and at times the primary system may have no way of controlling what happens once the product leaves the farm gate.

This unit standard can assist learners who want to enter into the secondary agricultural process.

END

LEVEL 5.3.3

AGRICULTURAL PRACTICES

TITLE	:	OPTIMISE WATER QUALITY
SAQA LOGO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	6
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner should demonstrate an ability to design and troubleshoot systems so as to optimize water quality parameters in an agricultural production facility.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of maintaining water quality in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instill a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Within the context of application, animals include but are not limited to insects, crustaceans, amphibians, reptiles, fish, birds and mammals, whichever is applicable to the area of operation. All range statements should be interpreted as relevant to the context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Manag water quality parameters.

- NQF 4: Plan and maintain environmentally sound agricultural processes.
- NQF 4: Manage a food safety and quality management system in the agricultural food chain.
- NQF 4: Establish a plan for the monitoring, safe use and maintenance of equipment, implements, technology and infrastructure.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Develop, design and optimize water quality systems.
2. Demonstrate an ability to devise solutions to water quality management problems.
3. Demonstrate a thorough ability to maintain and calibrate all monitoring and adjusting equipment.
4. Demonstrate a thorough ability to manage infrastructure related to water quality systems.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Develop, design and optimize water quality systems.

Range: Water quality management includes but is not limited to:

- Physical factors (temperature, after oxygen, water temperature may be the single most important factor affecting the welfare of aquatic organisms in aquaculture, they are generally categorized into warm water, cool water, and coldwater species based on optimal growth temperatures suspended solids, plankton, clay turbidity.)
- Chemical factors (Dissolved oxygen, ammonia, pH, salinity, super saturation, pollutants, heavy metals)
- Microbiological characteristics (*E. coli*, *Vibrio sp.*, *Salmonella sp.*, algal blooms, and possible diseases.)
- Biological processes (photosynthesis, nitrogen cycle, decomposition, energy budgets.)
- Operational technical systems: aeration, filtration, protein skimming, screening, bio-filtration, degassing, nutrient stripping and sterilization (ozonation, UV sterilization, chlorination).

Assessment criteria:

- 1.1 Extensive knowledge on water and water quality is demonstrated.
- 1.2 Extensive knowledge on the water requirements of plant or animal organisms is demonstrated.
- 1.3 The ability to design, develop or optimize water quality management systems is demonstrated.
- 1.4 Infrastructure to ensure the optimization of water quality management systems is created.

- 1.5 An ability to explain and implement a wide range of system designs in water quality is shown.
2. Demonstrate an ability to devise solutions to water quality management problems.

Assessment criteria:

- 2.1 The ability to explain in substantial depth an analysis of collected data and information especially within the context of corrective actions and system design in water quality management is demonstrated.
 - 2.2 The ability to design solutions to water supply and quality management problems is demonstrated.
 - 2.3 Solutions and maintenance procedures related to problems related to water quality and supply management are implemented.
 - 2.4 Guidelines related to water quality systems maintenance are provided.
3. Demonstrate a thorough ability to maintain and calibrate all monitoring and adjusting equipment.

Assessment criteria:

- 3.1 An ability to calibrate, maintain and operate all equipment is demonstrated and a thorough understanding of the different measured parameters and correct laboratory procedures is shown.
 - 3.2 An ability to logically identify and troubleshoot faulty equipment is shown.
 - 3.3 All testing and sampling equipment used are calibrated, maintained and operated.
 - 3.4 Equipment problems are identified and corrected.
4. Demonstrate a thorough ability to manage infrastructure related to water quality systems.

Assessment criteria:

- 4.1 The ability to create and maintain supply systems related to water quality installations and maintenance is demonstrated.
- 4.2 The ability to manage staff to operate and maintain water quality systems is demonstrated.
- 4.3 The managerial skills and ability to manage water quality and supply systems is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** Relates to all specific outcomes.
2. **Self Management:** Relates to all specific outcomes.
3. **Communication:** Relates to all specific outcomes.
4. **Team Work:** Relates to all specific outcomes.
5. **Interpreting information:** Relates to all specific outcomes.
6. **Science and Technology:** Relates to all specific outcomes.
7. **The world as a set:** Relates to all specific outcomes.
8. **Self-development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Names and functions of all the various components of water supply and quality systems.
2. Attributes of water related to water quality.
3. The requirements of organisms related to their water need.
4. The purpose of maintaining relevant water quality for living organisms.
5. Management skills.
6. Water purification techniques and systems.
7. Relevant legislation related to the feeding and care of living organisms.
8. Relevant legislations related to water use and environmental issues.
9. Interpersonal skills related to communication.
10. Sensory and documented cues related to water quality.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 5.3.4**AGRICULTURAL PRACTICES**

TITLE	:	DESIGN A NATURAL RESOURCE MANAGEMENT PLAN
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to explain the importance of natural resource management in relation to agricultural practices. Furthermore, the learner will be able to incorporate this understanding into the design of a natural resource management plan of the farm in relation to area wide planning and when participating in area wide planning and local government structures and policies.

In addition learners will be well positioned to extend their learning and practice into other areas of agriculture or to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural regulations and aspects of conservation as to provide the environment for the application of quality practices and thus strengthen agricultural practices in general.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of natural resource management in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is expected of the learner attempting this unit standard to demonstrate competence against the unit standard:

“Implement a natural resource management plan, NQF 4” or equivalent.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Design integrated natural resource management practices and plans to combat and prevent environmental degradation and deterioration.
2. Introduce innovative natural resource management practices to ensure the sustainability of an agricultural endeavour.
3. Develop and or update a natural resource management strategic plan for a farm.
4. Manage preventative and control measures according to a management plan.
5. Determine company/farm policy on natural resource management.
6. Assist in the development of area wide planning and local government structures and policies.
7. Demonstrate an in-depth knowledge of natural resource management practices and principles.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Design integrated natural resource management practices and plans to combat and prevent environmental degradation and deterioration.

Range: Natural resource management includes but is not limited to soil erosion and degradation, water harvesting, maintenance of catchment areas, establishment of rehabilitation areas, alien plant infiltration, fire precautions, agric practices on natural resources.

Assessment criteria:

- 1.1 Soil erosion preventative structures, water runoff, catchments and rehabilitation are designed and included into farm lay out.
- 1.2 Current agricultural practices are reviewed for efficiency.
- 1.3 Integrated and diverse partnerships (including environment, agriculture and planning) are developed and in place.

- 1.4 Natural resource management practices are included with management plans.
- 2 Introduce innovative natural resource management practices to ensure the sustainability of an agricultural endeavour.

Assessment criteria:

- 2.1 New research and information is accessed and utilised in natural resource management.
- 3 A natural resource management strategic plan for a farm is developed and/or updated.

Range: Flora and Fauna, together with their status (protected, endangered/abundant, invasive, etc.)

Assessment criteria:

- 3.1 Local resources are identified and related to biodiversity potential.
- 3.2 The area wide planning process is dovetailed with the strategic plan.
- 3.3 The natural resource management data received are correctly interpreted.
- 3.4 Relevant external information is accessed and reflected in the strategic plan.
4. Manage preventative and control measures according to a management plan.

Range: Preventative and control measures include protection of biodiversity (endangered species) and control of invasive species.

Assessment criteria:

- 4.1 The strategic plan is dovetailed with the management plan.
- 4.2 The management plan is adapted according to market plans and risk management.
- 4.3 Reports on natural resource management activities are received and evaluated and necessary amendments are made.
5. Determine company/farm policy on natural resource management.

Assessment criteria:

- 5.1 The most current updated information, and trends on natural resource management, is reflected by the policy.
- 5.2 Current information on legislation is acquired.
6. Assist in the development of area wide planning and local government structures and policies.

Range: Work with Conservation and Agricultural authorities to ensure that area wide plans exist and take steps to promote these among fellow land users.

Assessment criteria:

- 6.1 A working knowledge of acts and legislation is demonstrated and the implications thereof explained.
 - 6.2 Participation in relevant structures, meetings and forums is demonstrated.
 - 6.3 Input into above structures is prepared and presented.
7. Demonstrate an in-depth knowledge of natural resource management practices and principles.

Assessment criteria:

- 7.1 Natural resource management is incorporated into the management system.
- 7.2 Impact study outcome is interpreted and recommendations formulated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.

- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 to 7.
2. **Teamwork** relates to specific outcomes 1 to 7.
3. **Self-organisation and management** relates to specific outcomes 1 to 7.
4. **Information evaluation** relates to specific outcomes 1 to 7.
5. **Communication** relates to specific outcomes 1 to 7.
6. **Use science and technology** relates to specific outcomes 1 to 7.
7. **Inter-relatedness of systems** relates to specific outcomes 1 to 7.
8. **Self-development** relates to specific outcomes 1 to 7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate an intermediate knowledge of:

- 1 Principles of natural resources management.
- 2 Fire fighting (advanced).
- 3 Data processing techniques.
- 4 Principles of sustainability.
- 5 Methods of scheduling.
- 6 Definitions and terminology.
- 7 Methods of strategic planning.
- 8 Basic principles of budgeting.
- 9 Characteristics of soil types.
- 10 Rules of gravity.

- 11 Disasters that occur in the area.
- 12 Basic knowledge of holistic resource management
- 13 Environmental impact assessment.
- 14 Communication techniques.
- 15 Acts and legislation on “conservation of Agricultural Resources”.
- 16 OHS Act.
- 17 Natural Resource Conservation Act.
- 18 The water cycle.
- 19 The ecosystems.
- 20 The energy cycle.
- 21 Principles of sustainability.
- 22 Classification of fauna and flora relevant to the area.
- 23 Alien species relevant to the area.
- 24 Soil types and characteristics,
- 25 Definitions.
- 26 Terminology.
- 27 Prevailing climatic conditions of the area.
- 28 Sources of water.
- 29 Sources of energy (renewable and non renewable).
- 30 Topography.
- 31 Types of pollution.
- 32 Communication techniques.
- 33 Presentation techniques
- 34 Managerial techniques
- 35 Labour relations

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.3.5**AGRICULTURAL PRACTICES****TITLE:****PLAN A FARM AND SELECT A SITE**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

5

CREDIT

:

9

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A learner achieving this unit standard will be able to determine the most appropriate and sustainable land-use for different parts of the land, supervise the comprehensive implementation and maintenance of the selected infrastructure and maintain the most appropriate land-use on a farm by continuously assessing the natural resource base.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standard or equivalent:

NQF 4: Implement integrated farm layout and site selection.

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Identify and use appropriate technology to determine sustainable farm layout and infrastructure placement.
2. Identify relevant service providers who can render specific services.
3. Research information relevant to the natural resources of a site.

4. Implement necessary conservation and natural resource management and harvesting practices.
5. Apply the principles of sustainability in terms of the layout and infrastructure placement in an agricultural context.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify and use appropriate technology to determine sustainable farm layout and infrastructure placement.

Range: Appropriate technology using a comprehensive approach may include but is not restricted to high and low technological applications.

Assessment criteria:

- 1.1 The ability to identify and apply appropriate and available technology to generate a land use plan is demonstrated.
- 1.2 The ability to develop a sustainable and practical plan using appropriate and available technology is demonstrated.

2. Identify relevant service providers who can render specific services.

Range: The service providers may include but are not limited to government and parastatal departments, laboratories, non-government organisations, etc.

Assessment criteria:

- 2.1 The ability to identify relevant service providers is demonstrated.
- 2.2 The ability to establish an effective database of service providers and planning partners is demonstrated.

3. Research information relevant to the natural resources of a site.

Range: The researched information includes but is not restricted to soil, plants, animals, water, energy, topography and applicable legislation.

Assessment criteria:

- 3.1 The ability to identify and evaluate soil properties is demonstrated.
- 3.2 The ability to identify and assess the flow patterns of water over the landscape is demonstrated.
- 3.3 The wetlands and natural waterways of the landscape are accurately identified and demarcated. The climate patterns of the area are accurately identified.
- 3.4 The indigenous vegetation and appropriate cultivation species are accurately identified.
- 3.5 The applicable laws relating to changes in land-use and land use application are accurately identified.
- 3.6 The necessary soil conservation processes are accurately identified.

4. Implement necessary conservation and natural resource management and harvesting practices.

Range: The land use options may refer to intensive and extensive crop and/or animal systems, as well as aqua-cultural and horticultural production systems.

Assessment criteria:

- 4.1 Appropriate soil conservation plans, according to natural resource management principles, are recommended.
- 4.2 An understanding of the principles of rainwater harvesting is demonstrated.
- 4.3 The uses of in-field and upper catchment rainwater harvesting techniques are understood, and an ability to concentrate and use the harvested water productively demonstrated.
- 4.4 A series of at least three swales are surveyed and erected, at appropriate intervals.

5. Apply the principles of sustainability in terms of the layout and infrastructure placement in an agricultural context.

Range: Sustainability includes but is not restricted to the biophysical, social, economic and political factors involved.

Assessment criteria:

- 1.1 An understanding of biophysical, social, economic and political factors relating to sustainable practices is demonstrated.
- 1.2 Infrastructure is placed, accurately and appropriately, in such a way that it does not lead to environmental degradation.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 5.
2. **Teamwork:** relates to specific outcome 1.
3. **Self-management:** relates to specific outcome 2.
4. **Interpreting Information:** relates to specific outcomes 1 and 2.
5. **Communication:** relates to specific outcomes 1 and 2.
6. **Use Science and Technology:** relates to specific outcomes 1 and 2.
7. **The world as a set of related systems:** relates to specific outcomes 1 and 2.
8. **Self-development:** relates to specific outcomes 1 and 2.

INTERMEDIATE KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The laws and principles applicable in comprehensive land use.

ADVANCED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The inter-relationship between and the sustainable use of natural resources.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.4.1**ANIMAL PRODUCTION**

TITLE	:	EVALUATE ANIMAL ANATOMY AND PHYSIOLOGY SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to evaluate animals and their products anatomically, physiologically, physically and bio-chemically. In addition they will be well positioned to extend their learning and practice into other areas of agriculture, animal husbandry and veterinary science.

Learners will gain specific knowledge and skills in animal anatomy and physiology and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Functional Animal Anatomy and Physiology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify and understand the structures, composition, physical, biochemical and biological components and their interrelated activities pertaining to the various anatomical systems.
2. Identify, understand and evaluate symptomatic variations and abnormalities within animals, in the various anatomical systems and their probable causes.
3. Utilise the knowledge about animal anatomy, morphology and physiology to determine opportunities for working with animals
4. Utilise the knowledge about animal anatomy, morphology and physiology to create and develop animal production systems.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA.

1. Identify and understand the structures, composition, physical, bio-chemical and biological components and their interrelated activities pertaining to the various anatomical systems.

Range: Products include but are not limited to blood, hormones, enzymes and other glandular secretions, ova, lymph, semen, sperm, digestive fluids, tears, sebum, slime, cochineal, silk, faeces, bee products, meat as relevant to the context of application.

Assessment criteria:

- 1.1 Animals are anatomically evaluated for physical, bio-chemical and systems attributes, according to criteria.
 - 1.2 The various structures, physical components, products and interrelated changes per anatomical system are evaluated and described using reports, diagrams, pictures, sampling, analysis and dissections.
 - 1.3 Understanding that the specific animal is a set of interrelated systems is demonstrated.
2. Identify, understand and evaluate symptomatic variations and abnormalities within living animals, in the various anatomical systems and their probable causes.

Assessment criteria:

- 2.1 Normal symptoms and variations pertaining to the various anatomical systems and their products are identified and explained.
 - 2.2 Abnormal symptoms and variations pertaining to the various anatomical systems and their products and their probable causes are identified and explained.
 - 2.3 A plan of action based on the perception of the symptoms and variations in anatomical systems and their products is designed.
3. Utilise the knowledge about animal anatomy, morphology and physiology to determine opportunities for working with animals.

Assessment criteria:

- 3.1 The relationship that exists between the knowledge of animal anatomical systems and animal production systems is understood.
 - 3.2 The knowledge is utilised to determine niches where such knowledge might be applied.
 - 3.3 The ability to apply the knowledge about animal anatomy and physiology to economic advantage is indicated.
4. Utilise the knowledge about animal anatomy, morphology and physiology to create and develop animal production systems.

Assessment criteria:

- 4.1 The ability to design agricultural production systems to utilise the anatomical production of animal products is demonstrated.
- 4.2 The ability to implement and maintain agricultural production systems based on anatomical information is demonstrated.
- 4.3 The ability to provide assistance to animals in animal production systems is demonstrated.
(*Range:* assistance to animals may include but are not limited to the creation of humane animal production systems, humane slaughtering facilities, veterinarian support systems, etc. as relevant to the context of application).
- 4.4 The inherent business and personal risks involved in working with production animals are understood.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment and formative assessment, portfolios, presentations and observations, etc.

The assessments should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The specific outcomes must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

1. Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
2. Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
3. Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving:** relates to specific outcomes 2.
2. **Self-organisation:** and management relate to all specific outcomes.
3. **Interpreting information:** relates to specific outcome 2.
4. **Communication:** relates to all specific outcomes.
5. **Use of science and technology:** relates to all specific outcomes.
6. **Related systems:** relates to all specific outcomes.
7. **Self-development:** relates to all specific outcomes.
8. **Teamwork:** relates to specific outcomes 3 and 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Dissection technique.
2. Presentation technique.
3. Scientific sampling and analysis techniques.
4. Laboratory Hygiene and good practices (GLP).
5. Detailed anatomical systems and the physical and chemical processes involved in each.

6. The rules, laws, regulations, principles and codes of practice involved in the handling, dissection and analysis of animals.
7. The first principles of animal pathology.
8. The first principles of basic animal health care relating to anatomical systems.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 5.4.2**ANIMAL PRODUCTION**

TITLE	:	INTEGRATE SUSTAINABLE BREEDING AND SELECTION METHODS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to understand and apply advanced breeding and selection practices and integrate these practices into a breeding management programme.

Learners will gain specific knowledge and skills in the animal production field, specifically in the area of breeding management and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Plan and maintain breeding systems.

NQF 4: Implement animal health and bio-security systems.
NQF 5: Understand juvenile animal rearing practices.
NQF 5: Evaluate animal anatomy and physiology systems.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Integrate advanced breeding practices into a breeding management programme
 2. Combine advanced selection methods into a breeding management programme
 3. Incorporate the use of fertility and pregnancy diagnosis into a breeding management programme
 4. Develop and manage a sustainable breeding management programme
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Integrate advanced breeding practices into a breeding management programme

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of application.

Assessment criteria:

- 1.1 An understanding of genetic principles relating to farm animals and their relationship to breeding practices is depicted.
- 1.2 The incorporation of genetic principles of farm animals into a breeding management programme is explained.
- 1.3 Applicability of mating methods is recognised and the ability to integrate into a mating management programme is demonstrated.
- 1.4 Applicability and integration of artificial breeding techniques into a mating management programme is demonstrated.
(Range: Artificial insemination, embryo transfer, genetic manipulation, oestrus synchronisation and other).

2. Combine advanced selection methods into a breeding management programme

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of application.

Assessment criteria:

- 2.1 An understanding of genetic principles relating to selection methods of farm animals and their relationship to breeding management programmes is incorporated.

- 2.2 Applicability and integration of advanced selection methods into a mating management programme, is demonstrated.
(Range: Functional efficiency, performance testing, BLUP, progeny testing, variation and other).
- 2.3 Advantages and disadvantages of advanced selection methods are compared.

3. Incorporate the use of fertility and pregnancy diagnosis into a breeding management programme

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of application.

Assessment criteria:

- 3.1 The applicability and benefits of fertility and pregnancy testing in farm animals is evaluated.
- 3.2 The integration of fertility and pregnancy testing into a breeding management programme is depicted.
- 3.3 The evaluation of the results of fertility and pregnancy testing is classified and the decision between acceptable alternatives is demonstrated.

4. Develop and manage a sustainable breeding management programme

Range: Farm animals may include but are not limited to cattle, sheep, goats, pigs, horses, poultry, game, fish and other as relevant to the context of application.

Assessment criteria:

- 4.1 Sustainable breeding and selection methods must be evaluated and integrated into a breeding management system.
(Range: Breeding techniques, systems, methods, selection and other).
- 4.2 An integrated sustainable breeding programme must be developed.
- 4.3 The implementation and management of a sustainable breeding programme should be evaluated.
- 4.4 The sustainable breeding programme is analysed and revised on an annual basis

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** Relates to outcomes 1 to 4.
2. **Interpreting Information:** Relates to outcomes 1 to 4.

3. **Use Technology and Science:** Relates to outcomes1 to 3.
4. **Problem Solving:** Relates to outcomes1 to 4.
5. **Self-Organisation and Management:** Relates to outcomes1 to 4.
6. **Communication:** Relates to outcomes1 to 4.
7. **Inter-relatedness of Systems:** Relates to outcomes1 to 4.
8. **Professional Development:** Relates to outcomes1 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Planning and Management principles
2. Interpersonal skills
3. Communication skills
4. Application of breeding and selection methods to a management programme
5. Knowledge of legislation pertaining to the application of breeding methods
6. Procedures to be followed to apply breeding and selection methods
7. Evaluating and analysing breeding programmes
8. Purpose of integrating and managing a sustainable breeding programme
9. The rules, principles and laws of nature applied to breeding
10. Relationships between theory of breeding and applicability to a breeding programme

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.4.3**ANIMAL PRODUCTION**

TITLE	:	INVESTIGATE LIFE THREATENING HAZARDS WHEN HANDLING ANIMALS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to evaluate reactions to animal behaviour risks, report symptoms and causes of deviant behaviour, investigate life-threatening hazards and analyse cause and effect of defensive behaviour, so as to design programmes for animal management. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and animal husbandry to the benefit of the industry.

Learners will gain specific knowledge and skills in animal defensiveness and behaviour and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Apply procedures to manage damage control in animals and victims.

NQF 5: Evaluate animal anatomy and physiology.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand and identify all principles related to animal behaviour.
 2. Identify and understand animal behaviour systems and the effects of inappropriate management on the animal resulting in defensive behaviour.
 3. Identify and utilise resources that will allow the safe containment and shelter of animals.
 4. Understand and implement processes and systems that will show an understanding of the causes and effects of defensive behaviour.
 5. Identify, understand and implement specific management systems to allow for safe animal confinement in the event of defensiveness.
 6. Be in a position to develop and manage programmes which cater for the treatment of injured animals and their human managers
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand and identify all principles related to animal behaviour.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 1.1 Principles related to animal behaviour are understood and described.
 - 1.2 The manifestations of dangerous behaviour are understood and described.
 - 1.3 The application of the behaviour by man is evaluated.
 - 1.4 All natural factors that affect and influence animal behaviour are understood.
 - 1.5 Principles for safe animal containment are understood and described.
2. Identify and understand animal behaviour systems and the effects of inappropriate management on the animal resulting in dangerous defensive behaviour.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 2.1 Animal behaviour systems are understood and described.
 - 2.2 The conditions that lead to dangerous defensive behaviour are understood and described.
 - 2.3 Management systems that minimise risk in animal management are evaluated.
- 3 Identify and utilise resources that will allow the safe containment and shelter of animals.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 3.1 Events in the animal environment that influence safe containment of animal defensive reactions are identified.
 - 3.2 Resources in the environment that allow for safe containment of animals are utilised.
 - 3.3 The inherent legal, business and personal risks involved in animal behaviour systems are understood.
4. Understand and implement processes and systems that will show an understanding of the causes and effects of defensive behaviour.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 4.1 The preparation and planning of animal behaviour management systems are understood, illustrated and described.
 - 4.2 The implementation, of animal behaviour management systems concentrating on causes of defensive behaviour, is understood, illustrated and described.
 - 4.3 Systems to support the understanding and management of animal defensive behaviour are planned and implemented.
 - 4.4 The implementation of animal behaviour management systems concentrating on the effects of defensive behaviour, is understood, illustrated and described.
 - 4.5 Quality management procedures related to animal defensiveness behaviour are planned and implemented.
5. Identify, understand and implement specific management systems to allow for safe animal management in the event of defensiveness.

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 5.1 The biological systems of animals that relate specifically to animal behaviour are understood, illustrated and described.
- 5.2 The factors that affect efficient and effective management of animals including the implementation of safe standards are understood, illustrated and described.
- 5.3 Biological principles in the management of animals are implemented.
- 5.4 The use of commercial protocol for the efficient confinement and transport of animals is understood.

6. Develop and manage programmes that cater for the treatment of injured animals and their human managers

Range: Animals include but are not limited to mammals, birds, reptiles, insects, crustaceans and molluscs, as relevant to the context of operation.

Assessment criteria:

- 6.1. Programmes that cater for the treatment of injured animals are evaluated and developed.
- 6.2. Programmes that cater for the treatment of injured persons are evaluated and developed.
- 6.3. The effectiveness of treatment procedures is assessed.
- 6.4. An understanding of the networks available to assist when handling emergency situations is shown.
- 6.5. An inherent awareness of principles of safe animal management is created in others and themselves.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
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RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 6.
2. **Teamwork:** Relates to outcomes 2 to 6.
3. **Self-Organisation and Management:** Relates to outcomes 1 to 6.
4. **Communication:** Relates to outcomes 2 to 6.
5. **Personal Development:** Relates to outcomes 1 to 6.
6. **Interpretation of information:** Relates to outcomes 1 to 6.
7. **The world as a set:** Relates to outcomes 1 to 6.
8. **Science and technology:** Relates to outcomes 1 to 6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animal behaviour.
2. Animal science.
3. Sensory observation and evaluation of animal behaviour.
4. Management principles of animal confinement.
5. Animal biology and management.
6. Processing management.
7. Evaluation of the potential of animal behaviour systems.

8. The purpose of learning about animal behaviour systems.
9. Basic agricultural systems.
10. Public relations.
11. Record keeping.
12. Observation and management treatment systems.
13. Evaluation of business risks.

SUPPLEMENTARY INFORMATION

NOTES

END-

LEVEL 5.4.4**ANIMAL PRODUCTION**

TITLE	:	UNDERSTAND JUVENILE ANIMAL REARING PRACTICES
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUBFIELD	:	Primary Agriculture
ISSUE DATE REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to understand and manage juvenile animal rearing systems. In addition they will be well positioned to extend their learning and practice into other areas of agriculture, animal husbandry and veterinary science.

Learners will gain specific knowledge and skills in the rearing of specific juvenile animals and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE:

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

- NQF 5: Optimise Water Quality.
- NQF 4: Explain Intermediate Animal Nutrition.
- NQF 4: Explain Animal Classification and Natural History.
- NQF 5: Apply and Plan Animal Nutrition.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate full understanding of use and care or maintenance of all equipment used in the nursery.
2. Demonstrate the ability to plan and integrate systems to effect juvenile animal rearing.

3. Posses a detailed knowledge of the biology of the species including reproduction.
 4. Have complete knowledge of the feeding requirements of the juvenile animal species.
 5. Have full knowledge of and follow strict procedures for the rearing phases and be able to trouble shoot abnormalities.
 6. Know and apply correct hygiene procedures for the whole facility.
-

SPECIFIC OUTCOMES AND ASSESMENT CRITERIA

1. Demonstrate full understanding of use and care or maintenance of all equipment used in the nursery.

Range: Equipment will include but is not limited to oxygen meters, microscopes, salinity refractometer, scales, thermometer, pumping equipment, generators and heating systems, as relevant to the context of application.

The term "nursery" includes but is not limited to nurseries, hatcheries, aviaries, cages, and apiaries, rearing pens or isolated camps, as relevant to the context of application.

Juvenile animals include but are not limited to young or immature stages or specific development phases of mammals, fish, birds, crustaceans, molluscs, reptiles or amphibians, such as larvae, pupae, lambs, poults, squabs, calves, foals or whatever they may appropriately be called, as relevant to the context of application.

Assessment criteria:

- 1.1 The ability to calibrate, use and care for monitoring systems is demonstrated.
- 1.2 Full understanding of systems maintaining appropriate microenvironments such as pumps, heating, filtration, degassing, coverings, shelters and/ or other protective support systems is demonstrated.
- 1.3 The ability to recognize and trouble-shoot malfunctions in all equipment and system is demonstrated.
- 1.4 A complete understanding and application of hygiene systems in the nursery is shown.
- 1.5 Full competence in equipment use and techniques relevant to that species is shown.

- 2 Demonstrate the ability to plan and integrate systems to effect juvenile animal rearing.

Range: Systems will include but are not limited to spawning, settlement, rearing, hatching, feeding, sterilizing, treating, husbandry and handling, as relevant to the context of application.

Assessment criteria:

- 2.1 The ability to describe and schedule each system in a nursery is demonstrated.
- 2.2 Successful juvenile rearing cycles by integrating all necessary systems are demonstrated.
- 2.3 Ability to trouble-shoot problems arising and implementing corrective actions is demonstrated.

3. Posses a detailed knowledge of the biology of the species including reproduction.

Range: Knowledge should include but is not limited to metamorphosing stages and timing of metamorphosis where appropriate, appropriate feed requirements per development stage, water and feed quality requirements, possible diseases, morphology, anatomy and physiology, as relevant to the context of application.

Assessment criteria:

- 3.1 Complete knowledge of the appropriate life cycle showing an ability to recognize and list specific requirements of each stage of development is shown.
- 3.2 An ability to manipulate systems to specific juvenile development stage requirements is demonstrated.
- 3.3 Knowledge of different diseases affecting the juvenile animal rearing stages is demonstrated.
- 3.4 Dissection and microscopic techniques relevant to diseases that affect the various stages of juvenile animal development of the species are demonstrated.

4. Have complete knowledge of the feeding requirements of the juvenile animal species.

Range: Feed includes but is not limited to whole animals, animal products, natural vegetation and veld, planted crops, pastures, hay, silage, dry concentrates, algal cultures and complete feeds and supplements, as relevant to the context of application.

Assessment criteria:

- 4.1 An ability to allocate correct quantity and type of feed to each stage is demonstrated.
- 4.2 Coordination of production of feed species to satisfy feeding requirements of the nursery is shown.
(Range: The term "nursery" includes but is not limited to nurseries, hatcheries, aviaries, cages and apiaries, rearing pens or isolated camps).
- 4.3 An ability to control rate of feed supply to match juvenile animal feeding requirements is demonstrated.
- 4.4 The ability to develop feed programs according to juvenile animal species is demonstrated.

5. Have full knowledge of and follow strict procedures for the rearing phases and be able to trouble shoot abnormalities.

Range: Procedures include but are not limited to: observation, reporting of deviation from the norm including suggestions for improvement of systems to be improved by management or for development purposes (Research and development).

Assessment criteria:

- 5.1 Sophisticated record keeping with an understanding of deviations from the norm is demonstrated.
- 5.2 An ability to interpret the deviations both in procedures and development of species in order to correct and offer suggestions or solutions to management is demonstrated.
- 5.3 An understanding of reporting requirements must be demonstrated.
- 5.4 The knowledge on procedures to diagnose abnormalities must be indicated clearly.

6. Know and apply correct hygiene procedures for the whole facility.

Range: This will include but is not limited to: staff hygiene, good management practices, minimizing contamination of systems, sterilizing methods, treatment, quarantine and diseases prevention, as relevant to the context of application.

Assessment criteria:

- 6.1 Full knowledge of disease problems, treatments, and prevention must be demonstrated.
- 6.2 A full knowledge of sanitation methods and substances use must be demonstrated.
- 6.3 Extensive knowledge of biodegradability and its effect on juvenile animals must be demonstrated.
- 6.4 Knowledge of bacteria, contaminants, viruses and other causes of unhygienic conditions and the transmission of resultant diseases must be demonstrated.
- 6.5 Good management practices are applied.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
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RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** Relates to outcomes 1, 2, 4, 5 and 6.
2. **Problem Solving:** Relates to outcomes 1 to 6.
3. **Self-Management:** Relates to outcomes 1 to 6.
4. **Communication:** Relates to outcomes 1 to 6.
5. **Information Evaluation:** Relates to outcomes 1 to 6.
6. **Use of Science and Technology:** Relates to outcomes 1 to 6.
7. **Self-development:** Relates to outcomes 1 to 6.
8. **Inter relatedness:** Relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic comprehension and understanding of identification of groups of nutrients, ingredients and feeds in animal maintenance and production.
2. Identifying feed ingredients.
3. Maintaining and operating juvenile rearing systems.
4. Competence in analysing and troubleshooting abnormalities in juvenile animal rearing systems and apply corrective measures.
5. Familiarity with feed and water quality requirements and equipment utilization.
6. Awareness of sensory indicators involved in the rearing of juvenile animals.
7. Ability to interpret abnormal feeding behaviour.
8. Record keeping and analysis.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.4.5**ANIMAL PRODUCTION**

TITLE	:	APPLY AND PLAN ANIMAL NUTRITION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	12
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to apply scientific animal nutrition knowledge towards strategic production planning.

Learners will gain specific knowledge and skills in animal feeding and nutrition and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standard or equivalent:

NQF 4: Explain intermediate animal nutrition.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Nutrition Theory: Understand the metabolism of nutrient components and factors influencing it
2. Nutrition Theory: Understand the principles of qualifying nutrients requirements
3. Nutrition Theory: Understand evaluation criteria for feed ingredients
4. Nutrition Theory: Understand and apply feed formulation principles
5. Nutrition Theory: Calculate feeding levels for different animal categories
6. Feed Technology: Understand and determine quality control and corrective measures in feed conservation
7. Feed Technology: Interpret analysis of ingredients and feeds
8. Nutrition Management: Interpret feed evaluation results for use in animal production and feed flow management

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Nutrition Theory: Understand the metabolism of nutrient components and factors influencing it.

Range: All appropriate nutrient components: amino acids, fatty acids, sugars, fibres, vitamins and minerals.

Assessment criteria:

- 1.1 Digestibility and metabolism of nutrients are understood.
- 1.2 The effects of imbalances in nutrients on animals are explained.
- 1.3 Nutrient interactions within a diet are explained.

2. Nutrition Theory: Understand the principles of qualifying nutrient requirements

Range: All appropriate feed ingredients

Assessment criteria:

- 2.1 The ability to use animal feed tables to formulate rations for different species and categories of animals is demonstrated.
- 2.2 The ability to determine feed quantities for groups of animals over time is demonstrated.
(Range: Groups include but are not limited to flocks, herds, swarms, colonies, troops, schools, and populations).
- 2.3 The ability to evaluate feeding tables for different animal species at different developmental stages and categories is demonstrated.

3. Nutrition Theory: Understand evaluation criteria for feed ingredients.

Range: All appropriate types of feeds.

Assessment criteria:

- 3.1 The ability to interpret analysis of feed ingredients is demonstrated.
- 3.2 The ability to evaluate feed quality is demonstrated.
- 3.3 The sensory criteria used to evaluate feed ingredients are explained.

4. Nutrition Theory: Understand and apply feed formulation principles.

Range: Animal requirements and available ingredients.

Assessment criteria:

- 4.1 The ability to allocate correct mixtures of feed to different species and categories of animals to satisfy their requirements for production, stimulation or maintenance are explained.
- 4.2 The ability to identify nutrient imbalances in formulated feed mixtures is demonstrated.
- 4.3 The ability to develop adequate feed formulations and formulation charts is demonstrated.

5. Nutrition Theory: Calculate feeding levels for different animal species and categories.

Range: Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects.

Animal categories include but are not limited to juvenile animals, animals in lactation, animals in feeding cycles such as larvae, animals in preparation for slaughter, animals in production, animals utilised for work, animals on stable maintenance, animals that are pregnant and / or in mating cycles, animals requiring medication or treatment (preventative, management or operative), weaned animals, suckling animals or those receiving feed from their parent(s), animals to be prepared for production or recuperation (stimulation).

Assessment criteria:

- 5.1 The ability to plan and calculate the manufacture, mixing and supply of correct rations to different animals based on their stimulation, maintenance and production levels and requirements, is demonstrated.
- 5.2 The ability to empirically evaluate the effect on animals of the feeds developed and produced is demonstrated.
- 5.3 Feed calculations are adapted according to the controls developed and the effects of feed rations developed.

6. Feed Technology: Understand and determine quality control and corrective measures in feed conservation.

Range: Feed conservation and preservation techniques include but are not limited to weatherproofing, pest-control, fire prevention and fire protection procedures, vandal proofing, preservation (freezing, cooling, dehydration, chemical or bacterial preservation), escape proofing and theft proofing.

Assessment criteria:

- 6.1 The ability to develop and use management plans for making high quality feed using preservation or conservation techniques is demonstrated.
 - 6.2 The ability to take measures to conserve or preserve feeds is demonstrated.
 - 6.3 Evaluating and assessing the value of conserved feeds and of conserving or preserving feed is demonstrated.
7. Feed Technology: Interpret analysis, supply and availability of ingredients and feeds in animal maintenance, stimulation and production and feed flow management.

Range: Ingredients may include but are not limited to water, fibre, energy, protein, vitamins, carbohydrates and minerals.

Assessment criteria:

- 7.1 The ability to interpret results of analysis and uses the data appropriately to create information, which can be used to make recommendations, is demonstrated.
 - 7.2 The ability to implement recommendations made, based on analysis and interpretation is demonstrated.
 - 7.3 The ability to recognise the potential, perceived and actual effects of the analysis and subsequent implementation of feed programs and feed flow and to draw conclusions from it is demonstrated.
 - 7.4 The ability to use feed evaluation and analysis to determine and control feeding programmes is demonstrated.
 - 7.5 The ability to determine seasonal fodders demand for specific animal species and categories is demonstrated.
 - 7.6 The ability to prepare periodic feed flow plans is demonstrated.
8. Nutrition Management: Interpret feed evaluation results for use in animal production and feed flow management.

Assessment criteria:

- 8.1 An understanding of the concept and reality of feed flow management is demonstrated.
- 8.2 The planning of feed flow within animal production systems is demonstrated.
- 8.3 Data collected from animal production and feeding systems are evaluated and interpreted.
- 8.4 Feed flow plans based on data collected are created.
- 8.5 Continuous feedback and control systems to adapt to interpreted results are created.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

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Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

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Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

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RANGE STATEMENT

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CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** relates to outcomes 1 to 8.
2. **Interpreting Information:** relates to outcomes 1 to 8.
3. **Use Technology and Science:** relates to outcomes 1 to 3
4. **Problem Solving:** relates to outcomes 1 to 8.
5. **Self-Management:** relates to outcomes 1 to 8.
6. **Communication:** relates to outcomes 1 to 8.
7. **Inter-relatedness of Systems:** relates to outcomes 1 to 8.
8. **Personal Development:** relates to outcomes 1 to 8.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Understanding metabolism of nutrients.
2. Systems.
3. Understanding and interpretation of evaluation criteria.
4. Ability to formulate feeds and determine feeding levels.
5. Understanding factors affecting quality of conserved fodder.
6. Familiarity with legal regulations regarding feed and feed registration.
7. Ability to interpret feed evaluation results and applies them in animal management.
8. Ability to develop feed flow plans.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 5.4.6**ANIMAL PRODUCTION**

TITLE	:	EVALUATE ANIMAL HEALTH SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to evaluate animals and animal health care systems and to develop and implement prevention and treatment procedures. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and veterinary science.

Learners will gain specific knowledge and skills in animal health and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Explain Functional Animal Anatomy and Physiology.

NQF 4: Explain Intermediate Animal Nutrition.

NQF 4: Procure and manage agricultural input.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Evaluate the health of animals.
 2. Develop, implement and maintain animal disease prevention and management procedures.
 3. Develop, implement and maintain animal disease treatment procedures and management procedures.
 4. Assist with the development of animal disease prevention and treatment and production systems.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA.

1. Evaluate the health of animals.

Range: Disease symptoms of animals include but are not limited to breaks, deformities, scarring, damage, abnormally lethargic or aggressive behaviour, parasitic presence, bacterial symptoms and viral symptoms.

Assessment criteria:

- 1.1 The ability to evaluate animals concerning disease symptoms is demonstrated.
- 1.2 Educated opinion regarding animal health report contents is formulated and evaluated.
- 1.3 Animal health based on opinions and diagnoses are appraised.

2. Develop, implement and maintain animal disease prevention and management procedures.

Range: Disease prevention includes but is not limited to the elimination of stress-factors in animals resulting from nutritional, climatologically, environmental or harvesting influences or the application of prophylactic processes or substances.

Assessment criteria:

- 2.1 The ability to plan, implement and maintain disease prevention procedures is demonstrated.
- 2.2 The ability to plan, implement and maintain disease prevention management procedures is demonstrated.

2.3 The ability to evaluate and adjust the effects of animal disease prevention procedures is demonstrated.

3. Develop, implement and maintain disease treatment and management procedures.

Range: Animal disease treatment includes but is not limited to preventative measures such as stress relief and prophylactic processes or applications of substances.

Assessment Criteria:

3.1 The ability to plan, implement and maintain animal treatment procedures is demonstrated.

3.2 The ability to plan, implement and maintain an animal treatment management programme is demonstrated.

3.3 The ability to evaluate and adjust the effects of animal treatment procedures is demonstrated.

4. Assist with the development of animal disease prevention and treatment and production systems

Assessment criteria:

4.1 Assistance is provided in the planning and operations of animal production systems regarding animal health, and stress factors.

4.2 Assistance is provided in the planning and operation of animal disease prevention systems.

4.3 Assistance is provided in the planning and operation of animal disease treatment systems.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment and formative assessment, portfolios, presentations and observations, etc.

The assessments should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge

but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

1. Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
2. Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
3. Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relate to all outcomes.
2. **Teamwork:** Relate to all outcomes.
3. **Self-Management:** Relate to all outcomes.
4. **Interpreting Information:** Relate to all outcomes.
5. **Communication:** Relate to all outcomes.
6. **Use Science and Technology:** Relate to all outcomes.
7. **The world as a set of related systems:** Relate to all outcomes.
8. **Self-Development:** Relate to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Systems.
2. Animal health.

3. Animal nutrition.
4. Report writing.
5. Animal disease treatment.
6. The purpose of the development, implementation and maintenance of animal health systems.
7. The procedures involved in the treatment (preventative, corrective, therapeutic or pathological) of animal disease or abnormalities.
8. All relevant legislation, rules, principles and codes of conduct applicable to the development, implementation and maintenance of animal health systems.
9. The Agricultural Pests Act (Act 36 of 1983) and related regulations.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 5.4.7**ANIMAL PRODUCTION**

TITLE	:	HARVEST ANIMAL PRODUCTS: ANIMAL PRODUCTS SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	9
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to manage harvesting, preparation and processing of animal products with full understanding of the significance of the components of the product, its storage, processing and packaging and the ability to assess various methods of the above.

Learners will gain specific knowledge and skills in the harvesting of animal products and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Manage the quality of the harvesting of animal products.

NQF 5: Develop and manage a data collection plant to support an agricultural enterprise.

NQF 5: Integrate marketing plan with the business process.

NQF 5: Develop and implement a food safety and quality management system in an agricultural supply chain.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand and identify all principles related to animal product production.
2. Identify and understand animal production systems and the effects of harvesting animal products on the animal and on the product.
3. Identify and utilise opportunities in the animal product production environment that will allow the production and processing of animal products.
4. Understand and implement processes and systems that will allow for the harvesting and processing of animal products.
5. Identify, understand and implement specific management of animals to produce products of constant quality and quantity for harvesting and processing.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand and identify all principles related to animal product production.

Range: Principles in animal product production include but are not limited to the biology, biochemistry and physiology of the animal and the animal product produced.

Assessment criteria:

- 1.1 Animal production processes within the animal are understood and described.
- 1.2 The purpose for the production of the product by the animal is understood and described.
- 1.3 The application of the animal product by man is understood and described.
- 1.4 All natural factors that affect efficiency and effectiveness of animal product production are understood.
- 1.5 The harvesting and processing of animal products by man are understood and described.

2. Identify and understand animal production systems and the effects of harvesting animal products on the animal and on the product.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries

(including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as applicable to the context of application.

Assessment criteria:

- 2.1 Animal production, harvesting and processing systems are understood and described.
- 2.2 The detailed effects of harvesting animal products on the animal and the animal's anatomical systems are understood and described.
(Range: the effects of the harvesting of animal products on the animal include but are not limited to nothing whatsoever, relief, death (slaughter or use of whole animal), and stress).
- 2.3 The effects of harvesting animal products and the various procedures used have on the product are understood and described.
(Range: the effects of harvesting the product on the product include but are not limited to degeneration, waste, quality improvement, death).

- 3 Identify and utilise opportunities in the animal product production environment that will allow the production and processing of animal products.

Range: Animal product production environments include but are not limited to agricultural enterprises such as feedlots, ranges and semi-intensive systems, batteries, aquatic animal enterprises and mari-culture, apiculture, aviculture, sericulture as applicable to the context of application.

Assessment criteria:

- 3.1 Opportunities in the animal product production and processing environment are identified.
- 3.2 Opportunities in animal product production and processing environment using acceptable business principles are utilised.
- 3.3 The inherent business and personal risks involved in animal product production are understood.

4. Understand and implement processes and systems that will allow for the harvesting and processing of animal products.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as applicable to the context of application.

Assessment criteria:

- 4.1 The preparation and planning of animal product harvesting and processing production systems are understood, illustrated and described.
- 4.2 The implementation of animal product harvesting and processing production systems are understood, illustrated and described.

- 4.3 Business systems are planned and implemented to support the implemented animal product harvesting and processing systems.
- 4.4 Quality management procedures in the management of animal product harvesting and processing systems are planned and implemented.
5. Identify, understand and implement specific management of animals to produce products of constant quality and quantity for harvesting and processing.
- Range:** Special management of animals for animal product production includes but is not limited to the feeding of animals, the grooming of animals, the separation of types or genders or categories of animals from each other, the implementation of prophylactic or therapeutic medication, dosing or treatment regimes, breeding programmes for animals, juvenile management, housing, selection processes, movement and handling of animals as applicable to the context of application.

Assessment criteria:

- 5.1 The biological systems of animals that relate specifically to animal product production are understood, illustrated and described.
- 5.2 The factors that affect efficient and effective production and harvesting of animal products including the implementation of standards are understood, illustrated and described.
- 5.3 Biological principles in the management of animals used for the production of animal products are implemented.
- 5.4 The use of commercial animal product production, harvesting and processing systems, is understood.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should

not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 5.
2. **Teamwork:** Relates to outcomes 2 to 5.
3. **Self-Organisation and Management:** Relates to outcomes 1 to 5.
4. **Communication:** Relates to outcomes 2 to 5.
5. **Personal Development:** Relates to outcomes 1 to 5.
6. **Interpretation of information:** Relates to outcomes 1 to 5.
7. **The world as a set:** Relates to outcomes 1 to 5.
8. **Science and technology:** Relates to outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animal product producing animal.
2. Animal science.
3. Sensory observation and evaluation of animal product production.
4. Management principles of animal product production, harvesting and processing.
5. Agricultural and natural chemical systems and processes involved in animal product production.
6. Animal biology and management.
7. Processing management.
8. Evaluation of the potential of animal product production systems.
9. The purpose of learning about animal products and production, harvesting and processing.
10. Basic agricultural systems.
11. Public relations.
12. Record keeping.
13. Observation and management of producing animals.
14. Evaluation of business risks.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.4.7**ANIMAL PRODUCTION**

TITLE	:	HARVEST ANIMAL PRODUCTS: ANIMAL PRODUCTS SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	9
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to manage harvesting, preparation and processing of animal products with full understanding of the significance of the components of the product, its storage, processing and packaging and the ability to assess various methods of the above.

Learners will gain specific knowledge and skills in the harvesting of animal products and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Manage the quality of the harvesting of animal products.

NQF 5: Develop and manage a data collection plant to support an agricultural enterprise.

NQF 5: Integrate marketing plan with the business process.

NQF 5: Develop and implement a food safety and quality management system in an agricultural supply chain.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand and identify all principles related to animal product production.
2. Identify and understand animal production systems and the effects of harvesting animal products on the animal and on the product.
3. Identify and utilise opportunities in the animal product production environment that will allow the production and processing of animal products.
4. Understand and implement processes and systems that will allow for the harvesting and processing of animal products.
5. Identify, understand and implement specific management of animals to produce products of constant quality and quantity for harvesting and processing.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand and identify all principles related to animal product production.

Range: Principles in animal product production include but are not limited to the biology, biochemistry and physiology of the animal and the animal product produced.

Assessment criteria:

- 1.1 Animal production processes within the animal are understood and described.
- 1.2 The purpose for the production of the product by the animal is understood and described.
- 1.3 The application of the animal product by man is understood and described.
- 1.4 All natural factors that affect efficiency and effectiveness of animal product production are understood.
- 1.5 The harvesting and processing of animal products by man are understood and described.

2. Identify and understand animal production systems and the effects of harvesting animal products on the animal and on the product.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries

(including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as applicable to the context of application.

Assessment criteria:

- 2.1 Animal production, harvesting and processing systems are understood and described.
 - 2.2 The detailed effects of harvesting animal products on the animal and the animal's anatomical systems are understood and described.
(Range: the effects of the harvesting of animal products on the animal include but are not limited to nothing whatsoever, relief, death (slaughter or use of whole animal), and stress).
 - 2.3 The effects of harvesting animal products and the various procedures used have on the product are understood and described.
(Range: the effects of harvesting the product on the product include but are not limited to degeneration, waste, quality improvement, death).
- 3 Identify and utilise opportunities in the animal product production environment that will allow the production and processing of animal products.

Range: Animal product production environments include but are not limited to agricultural enterprises such as feedlots, ranges and semi-intensive systems, batteries, aquatic animal enterprises and mari-culture, apiculture, aviculture, sericulture as applicable to the context of application.

Assessment criteria:

- 3.1 Opportunities in the animal product production and processing environment are identified.
 - 3.2 Opportunities in animal product production and processing environment using acceptable business principles are utilised.
 - 3.3 The inherent business and personal risks involved in animal product production are understood.
4. Understand and implement processes and systems that will allow for the harvesting and processing of animal products.

Range: Animal products include but are not limited to bee products (such as wax, honey, propolis, bee venom, brood, royal jelly), manure, urine and other excretions of animals, meat, horns, bones, skins, feathers, snake venom, silk, fibre, cochineal, whole (live or slaughtered) animals such as marine molluscs and crustaceans and insects such as mopane worms or animals for use in medical science and research, animal derivatives such as semen and ovaries (including eggs), glandular and endocrine products (including hormones and milk), animal body parts, animal work and services such as traction, pollination, guiding as applicable to the context of application.

Assessment criteria:

- 4.1 The preparation and planning of animal product harvesting and processing production systems are understood, illustrated and described.
- 4.2 The implementation of animal product harvesting and processing production systems are understood, illustrated and described.

- 4.3 Business systems are planned and implemented to support the implemented animal product harvesting and processing systems.
- 4.4 Quality management procedures in the management of animal product harvesting and processing systems are planned and implemented.
5. Identify, understand and implement specific management of animals to produce products of constant quality and quantity for harvesting and processing.
- Range:** Special management of animals for animal product production includes but is not limited to the feeding of animals, the grooming of animals, the separation of types or genders or categories of animals from each other, the implementation of prophylactic or therapeutic medication, dosing or treatment regimes, breeding programmes for animals, juvenile management, housing, selection processes, movement and handling of animals as applicable to the context of application.

Assessment criteria:

- 5.1 The biological systems of animals that relate specifically to animal product production are understood, illustrated and described.
- 5.2 The factors that affect efficient and effective production and harvesting of animal products including the implementation of standards are understood, illustrated and described.
- 5.3 Biological principles in the management of animals used for the production of animal products are implemented.
- 5.4 The use of commercial animal product production, harvesting and processing systems, is understood.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should

not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to outcomes 1 to 5.
2. **Teamwork:** Relates to outcomes 2 to 5.
3. **Self-Organisation and Management:** Relates to outcomes 1 to 5.
4. **Communication:** Relates to outcomes 2 to 5.
5. **Personal Development:** Relates to outcomes 1 to 5.
6. **Interpretation of information:** Relates to outcomes 1 to 5.
7. **The world as a set:** Relates to outcomes 1 to 5.
8. **Science and technology:** Relates to outcomes 1 to 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific animal product producing animal.
2. Animal science.
3. Sensory observation and evaluation of animal product production.
4. Management principles of animal product production, harvesting and processing.
5. Agricultural and natural chemical systems and processes involved in animal product production.
6. Animal biology and management.
7. Processing management.
8. Evaluation of the potential of animal product production systems.
9. The purpose of learning about animal products and production, harvesting and processing.
10. Basic agricultural systems.
11. Public relations.
12. Record keeping.
13. Observation and management of producing animals.
14. Evaluation of business risks.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.4.8**ANIMAL PRODUCTION**

TITLE	:	DISSECT ANIMALS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	5
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to meaningfully and purposefully dissect animals. In addition they will be well positioned to extend their learning and practice into other areas of animal husbandry and veterinarian science.

Learners will gain specific knowledge and skills in practical animal dissection and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 5: Evaluate Animal Anatomy and Physiology systems.

NQF 4: Explain animal classification and natural history.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate the understanding and use of humane animal killing techniques and methods.
 2. Demonstrate the use and understanding of how to use dissection equipment and implements.
 3. Demonstrate knowledge of what is to be dissected.
 4. Demonstrate knowledge of how to dissect a specific animal type.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA.

1. Demonstrate the use and understanding of humane animal killing techniques and methods.

Range: Killing methods includes only those controlled by the appropriate animal welfare legislation, and includes all animals in all communities.

Assessment criteria:

- 1.1 Animals are to be killed humanely where appropriate.
- 1.2 Animal killing equipment is to be demonstrated and handled appropriately.
- 1.3 The necessity for humanely killing animals is demonstrated.
2. Demonstrate the use and understanding of how to use dissection equipment and implements

Assessment criteria:

- 2.1 Every implement and piece of equipment required for dissections is described.
(*Range:* equipment and implements include but are not limited to scalpels, tweezers, saws, knives, and microscopes (monocular and binocular).
- 2.2 The correct use and handling of every implement and piece of equipment required for dissections are understood and described.
- 2.3 Preparation, cleaning and packing and clearing away of dissecting equipments and implements are described.
3. Demonstrate knowledge of what is to be dissected.

Range: All appropriate animals are included in this range.

Assessment criteria:

- 3.1 An understanding of the handling of the specific animal while alive and when dead is demonstrated.
 - 3.2 An understanding of the anatomical systems pertaining to the specific animal is demonstrated.
 - 3.3 Correct dissecting technique is demonstrated.
 - 3.4 Understanding of the need for the dissection of the specific animal is explained.
- 4 Demonstrate knowledge of how to dissect a specific animal.

Range: All appropriate animals are included in this range.

Assessment Criteria:

- 4.1 An animal dissection procedure including all equipment and implements required are planned.
- 4.2 An understanding of and ability to dissect a specific animal according to requirements and criteria is demonstrated.
- 4.3 Anatomical systems so dissected are evaluated and information based on the observations made is provided.
- 4.4 Data related to the dissection process, the observations made and the opinions formed or diagnoses made during the process is captured.
- 4.5 Reports are provided in appropriate formats including diagrams, pictures, graphs, photographic evidence, samples appropriately preserved and presented wherever appropriate.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment and formative assessment, portfolios, presentations and observations, etc.

The assessments should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

1. Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
2. Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
3. Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to all outcomes.
2. **Teamwork:** relates to all outcomes.
3. **Self-Management:** relates to all outcomes.
4. **Interpreting Information:** relates to all outcomes.
5. **Communication:** relates to all outcomes.
6. **Use Science and Technology:** relates to all outcomes.
7. **The world as a set of related systems:** relates to all outcomes.
8. **Self-development:** relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Dissection techniques and procedures.
2. Names and functions of various anatomical systems within the appropriate animals.
3. The details of the implements, equipment and instruments used during the dissection process.
4. Diagnosis of the various anatomical systems within animals.
5. Purposes of dissections.

6. Legislation, laws, bylaws, rules, and codes of conduct relating to dissection and the killing of animals.
7. Characteristics of the various types of animals to be dissected.
8. Good Laboratory practices (GLP).

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 5.5.1**PLANT PRODUCTION**

TITLE : DESCRIBE BIOLOGICAL PROCESSES IN PLANT PHYSIOLOGY

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 5

CREDIT : 9

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Anatomy and Physiology

ISSUE DATE :

REVIEW DATE :

PURPOSE

The learner will be able to describe the basic biochemistry involved in the physiological processes of a plant.

Learners will gain specific knowledge and skills in plant anatomy and physiology and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Demonstrate a basic understanding of the physiological processes in plant growth and development

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Explain the role of carbon compounds in cells and describe the ground rules of metabolism.
 2. Explain the movement of water and solutes within a plant.
 3. Describe the biochemistry of the energy acquiring pathways of a plant (photosynthesis).
 4. Understand the energy releasing pathways (respiration) and its role in the plant.
 5. Describe the different hormones and the role they play in the growth and development of a plant.
 6. Describe plant responses to the environment.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

1. Explain the role of carbon compounds in cells and describe the ground rules of metabolism.

Range: Metabolism refers to but is not limited to the build-up or breakdown of these carbon compounds.

Assessment criteria:

- 1.1 Different carbohydrates and the role they play in the growth and development of a plant are discussed.
- 1.2 The role of lipids in terms of their role in the life of a plant is described.
- 1.3 The production of proteins and the role it plays in the metabolism of a plant is described.
- 1.4 The role of enzymes in the metabolic processes of the plant is explained.
- 1.5 ATP formation is illustrated and the role it plays in the physiological functions of the plant is described.

2. Explain the movement of water and solutes within a plant.

Range: Movement includes but is not limited to diffusion, osmosis, passive and active transport of gases, liquids, carbon substances and solutes

Assessment criteria:

- 2.1 The process of diffusion and osmosis is described and illustrated.

- 2.2 The difference between active and passive transport in a plant is explained.
- 2.3 The process of active transport as it relates to the movement of solutes from cell to cell is described.
- 2.4 The role of water in the physiological processes of the plant in relation to the environment is discussed.
3. Describe the biochemistry of the energy acquiring pathways of a plant (photosynthesis).

Range: This refers to but is not limited to the biochemistry of the light phase, dark phase, cyclic and non-cyclic phosphorylation.

Assessment criteria:

- 3.1 The occurrence of light absorption by the light trapping mechanism is illustrated and described.
- 3.2 The formation of ATP and NADPH in the chloroplast is described.
- 3.3 The cyclic (photo system I) and non-cyclic (photo system II) pathways and their role in photosynthesis of plants are illustrated and discussed.
- 3.4 The Calvin-Benson cycle is described and illustrated.
- 3.5 The differences between C3, C4 and CAM plants are explained and practical examples of each are given.
- 3.6 Chemosynthesis and how it relates to agriculture are explained.
4. Understand the energy releasing pathways (respiration) and its role in the plant.

Range: Respiration refers to but is not limited to aerobic, anaerobic and electron transport phosphorylation, it may include the different fermentation processes such as alcohol and lactate

Assessment criteria:

- 4.1 The process of glycolysis is illustrated and described.
- 4.2 The kreb cycle is illustrated and described.
- 4.3 Where and how these processes occur and how it influences cell development as well as its role in fruit maturation are described.
- 4.4 The different anaerobic respiration processes and how the environment plays a role in this process are described.
- 4.5 The role anaerobic respiration plays in different agricultural activities is explained.
5. Demonstrate knowledge of the different hormones and the role they play in the growth and development of a plant.

Range: Hormones refer to the main plant hormones such as auxins, gibberellins, and cytokines, abscise acid, and ethylene but are not limited to only these. The effect that hormones have on growth and development but are not limited to processes such as phototropism, gravitropism, abscission and senescence.

Assessment criteria:

- 5.1 The role auxins play in growth and development of a plant including the role of synthetic auxins is described.
 - 5.2 The role gibberellins play in growth and development in plants including the breaking of dormancy and its role in the plant's response to environmental trigger is discussed.
 - 5.3 Describe The role cytokines play in leaf development as well as agriculture in general (elongation of shelf-life of vegetables) is described.
 - 5.4 The role of abscisic acid with relevance to seed and bud-dormancy is described and illustrated.
 - 5.5 Describe The role of ethylene in fruit ripening and abscission in response to environmental signals is described.
6. Describe plant responses to the environment.

Range:

Plant responses may include but are not limited to phototropism, gravitropism, thigmotropism and other mechanical stimuli. Environmental factors refer to but are not limited to light, temperature, water and mechanical damage

Assessment criteria:

- 6.1 The environmental factors influencing the growth and development of plants are described.
- 6.2 The processes of photo-, gravi- and thigmotropism are explained.
- 6.3 A plant's response to mechanical stimuli is explained.
- 6.4 Photo-periodism with respect to the flowering processes of plants is explained.
- 6.5 The process of senescence and its role in the life cycle of the plant is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to all outcomes.
2. **Teamwork:** Relates to all outcomes.
3. **Self-Management:** Relates to all outcomes.
4. **Interpreting Information:** Relates to all outcomes.
5. **Communication:** Relates to all outcomes.
6. **Use Science and Technology:** Relates to all outcomes.
7. **The world as a set of related systems:** Relates to all outcomes.
8. **Self-development:** Relates to all outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

1. Names and functions of the different parts of the plant.
2. Different basic anatomical structures and its physiological processes occurring in a plant.
3. Purpose of the different biochemical processes in the plant.
4. Different environmental factors and the role they have in the growth and development process of the plant.
5. The relationship between the plant, its external and internal environment is understood as forming part of the environment.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.5.2**PLANT PRODUCTION**

TITLE : **MANAGE THE HARVESTING PROCESS OF AGRICULTURAL CROPS**

SAQA :

UNIT STANDARD LEVEL : 5

CREDIT : 10

FIELD : AGRICULTURE AND CONSERVATION

SUB-FIELD : PRIMARY AGRICULTURE

ISSUE DATE :

REVIEW DATE :

PURPOSE

A learner achieving this unit standard will be able to develop, implement and supervise different plans impacting on the harvesting of crops according to the necessary procedures making use of harvesting tools as described in the harvest plan.

Learners will gain specific knowledge and skills in harvesting systems and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Develop a harvesting plan for the specific agricultural crop.

NQF 4: Implement a data collection plan.

NQF 4: Execute sustainable resource use and quality control.

NQF 5: Optimise and integrate various farming systems and trends within related enterprises.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Investigate new tools / equipment and methods of harvesting to compliment existing plan and procedures.
2. Manage the maturity-indexing process and decide on procedures.
3. Manage the harvesting of crops according to specified procedures.
4. Manage so that health, hygiene and safety during harvesting is adhered to according to specified procedures.
5. Manage the disposal of waste according to specified procedures in accordance with good agricultural practices.
6. Manage the care and maintenance of equipment used.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Investigate new tools / equipment and methods of harvesting to compliment existing plan and procedures and to fit in with GAP.

Range: New tools and equipment include but are not limited to new technology developed for the harvesting of crops for the different agricultural enterprises. Harvesting methods according to specific production context include, but are not limited to harvesting by hand, machine etc.

Assessment criteria:

- 1.1 How new technology and techniques are tried and tested to facilitate better harvesting and compliment existing processes are explained.
- 1.2 How the above is accessed is explained.

- 1.3 How the data is captured and processed to test the viability of the new technology is explained.
- 1.4 How results are evaluated is explained.
- 1.5 How the technology will be accepted or rejected is described.
- 1.6 The record keeping of the entire process is described.

2. Manage the maturity-indexing (MI) process and decide on procedures.

Range: Managing the MI process includes but is not limited to establishing how samples should be taken, samples should be analysed, and data processed.

Assessment criteria:

- 2.1 How and where samples are tested and data processed are described.
- 2.2 How the MI data is evaluated and how this data influences the harvesting plan is explained
- 2.3 How the different sampling methods are tested to get optimum results are described.
- 2.4 How harvesting problems are solved using the MI data is explained.
- 2.5 How samples are tested and data processed and information distributed is demonstrated.
- 2.6 How records are kept to ensure GAP is adhered to are explained.

3. Manage the harvesting of crops according to specified market needs and logistics.

Range: Logistics refers to, but are not limited to market maturity of, transport and storage of produce. Market needs refer to, but are not limited to pricing, exchange rate, volumes, quality, etc.

Assessment criteria:

- 3.1 The gathering of market information and the influence it has on the harvesting plan is explained.
- 3.2 The managing and incorporation of the market needs are into the harvest plan is discussed.
- 3.3 The managing of the harvesting plan to get optimum results for storage of the products is described.
- 3.4 The managing of pre-harvest factors using GAP to get optimum product quality at harvests is described.
- 3.5 The keeping of records and reports to be traceable should any queries be made are demonstrated.

4. Manage the health, hygiene and safety plan according to GAP.

Range: Managing the process includes but is not limited to ensuring that the OHSA, EUREPGAP, BRC, ISO 9000, 1400 etc is adhered to.

Assessment criteria:

- 4.1 The usage of a risk assessment is to ensure that an effective health, hygiene and safety action plan is developed to promote safe and healthy working conditions is explained.
 - 4.2 The different policy and regulations that need to be adhered to, to comply with company, market and state regulations are described.
 - 4.3 The different training programmes, which are instituted to assist the staff with understanding the needs of the company, market and state are discussed.
 - 4.4 The different accident and emergency procedures that exist to ensure an accident free working environment according to GAP are described.
 - 4.5 The record keeping process to ensure that any problems or information can be tracked and traced is described.
5. Manage the disposal of waste according to specified procedures in accordance with good agricultural practices (GAP).

Range:

Waste includes but is not limited to bio-degradable materials (include parts of plants, fruit, flowers, etc.) and non bio-degradable materials (plastics, glass, metals, etc.) A waste collection and disposal plan could include but is not limited to evaluating what can be recycled, how and where and what must be dumped, where and how. Good agricultural practices include but are not limited to adhering to different rules and regulations and within the confines of the law and society norms.

Assessment criteria:

- 5.1 The running of a waste management plan in accordance with GAP is described.
 - 5.2 The processes involved in a waste management plan are described.
 - 5.3 Implementing the plan for the agricultural business to benefit most with being the least disruptive to the environment is explained.
 - 5.4 The types of records that are kept and how they are managed is described.
 - 5.5 The auditing of the waste management plan to ensure it complies with GAP, and other policies are explained.
6. Manage the care and maintenance of equipment used.

Range: Care and maintenance includes but is not limited to the cleaning, repairing sanitizing and storage of the equipment etc according to GAP and other regulatory policies. Equipment include, but are not limited to hand tools, power tools, machinery, etc.

Assessment criteria:

- 6.1 How the caring, storage and maintenance plan for implements and equipment will be managed according to GAP is explained.
- 6.2 The development of a replacement programme for tools, equipment and machinery taking into consideration GMP is described.
- 6.3 The implementation of a loss control policy of tools and equipment is described.

- 6.4 The record keeping process that controls all the different requirements for a user-friendly plan, which can be accomplished and is in the framework of GAP is discussed.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Teamwork:** Relates to all specific outcomes.
2. **Self-development:** Relates to all specific outcomes.
3. **Communication:** Relates to all specific outcomes.
4. **Information interpretation:** Relates to all specific outcomes.
5. **Inter-relatedness of Systems:** Relates to all specific outcomes.
6. **Problem Solving:** Relates to all specific outcomes.
7. **Self Management:** Relates to all specific outcomes.
8. **Use science and technology:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Principles of EUREPGAP, GAP, GMP and other policies are understood.
2. Principles of harvesting a crop are understood.
3. Principles of maturity indexing are understood.
4. Names and functions of tools and materials.
5. Safe handling procedures of tools and materials.
6. Various harvesting methods are understood.
7. Plant physiology and anatomy.
8. Importance of harvesting area being clean from waste material.
9. Knowledge of legal occupational health and safety appropriate to level.
10. Importance of work program development.
11. Importance personnel management.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.5.3**PLANT PRODUCTION****TITLE:****DEVELOP SUITABLE IRRIGATION SYSTEMS**

SAQA LOGO

:

UNIT STANDARD NO

:

PAETA/Crop Protection Products

UNIT STANDARD LEVEL

:

5

CREDIT

:

10

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

A learner achieving this unit standard will be able to manage and control irrigation infrastructure and related resources, (which include equipment, technology and infrastructure) in a sustainable manner and explain the importance of sound utilisation and maintenance practices. The learner will also be able to incorporate this understanding into an optimisation programme and policy. The learner will also be able to optimise seasonal/year work programmes with reference to water availability, irrigated area, crop water requirements, irrigation scheduling and related technology and infrastructure. The learner will also be in a position to prescribe strategies with respect to irrigation practice in situations of water shortage (risk seeking vs. risk adverse).

Learners will gain specific knowledge and skills in irrigation and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF4: Scheduling The Operation And Maintenance Of Irrigation Systems.

NQF 5: Optimise water quality

NQF5: Manage and control resources in a sustainable manner.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Select an appropriate irrigation system.
2. Efficiently and cost effectively manage an extended irrigation operation.
3. Implement appropriate task related technology in the irrigated agricultural environment (scheduling/monitoring, adaptation of scheduling programmes, etc.) in variable water availability scenarios.
4. Manage appropriate seasonal/year irrigation related work programmes with reference to crop water requirement, crop value, area irrigated and water availability.
5. Suggest a replacement policy with reference to expenditure implications.
6. Ensure that all irrigation practices are environmentally sensitive (e.g. Eurepgap and related Agreement compliant), specifically in terms of water extractions and return flows.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Select an appropriate irrigation system.

Range: Includes but is not limited to all types of irrigation systems, crop type, soil properties, climatic characteristics, economic considerations, etc.

Assessment criteria:

- 1.1 Suitable irrigation systems for different uses with regard to:
 - 1.1.1 Quantity of water available.
(Range: Includes but is not limited to annual/seasonal allocations, pumping constraints, etc.)
 - 1.1.2 Quality of water.
(Range: Includes but is not limited to effect on crop growth (yield, quality), effect on efficiency of fertigation, etc.)
 - 1.1.3 Crop type.
(Range: Includes but is not limited to seasonality, rooting depth, sensitivity to water stress, etc)
 - 1.1.4 Peak crop water requirements.

1.1.5 Water holding capacity of the soil.
(Range: Includes but is not limited to Field capacity, wilting point, available water, readily available water, etc) are identified.

2 Efficiently and cost effectively manage an extended irrigation operation.

Range: Includes but is not limited to: optimising on-farm water use efficiency by the implementation and adaptation of irrigation scheduling programmes; optimising pressure and flow rates throughout the system; minimising water losses in the system: ensuring optimum yield vs. water use.

Assessment criteria:

- 2.1 Irrigation programmes are adapted to meet water requirements of the various crops.
- 2.2 Junior staff is trained to ensure that factors such as pressure and flow rate are optimised.
- 2.3 A water loss detection programme is initiated.
- 2.4 Alternative approaches/solutions to problems that are encountered are discussed with supervisor.
- 2.5 An irrigation system operation "manual" is prepared.
- 2.6 Water use, water quality and fertigation data are monitored and collated.

3 Implement appropriate task related technology in the irrigated agricultural environment (scheduling/monitoring, adaptation of scheduling programmes, etc.) in variable water availability scenarios.

Range: Includes but is not limited to: soil moisture measuring devices; weather stations; water saving measures (i.e. drip/micro); control valves.

Assessment criteria:

- 3.1 An effective crop water use estimation infrastructure is maintained.
- 3.2 Irrigation scheduling programmes to meet varying water availability scenarios are optimised.
- 3.3 The efficiency/accuracy of irrigation scheduling devices are evaluated.
- 3.4 Adaptations to improve the efficiency of irrigation scheduling devices are recommended.
- 3.5 New irrigation water use efficiency technologies are taken into consideration.
(Range: Included, but not limited to, attendance of relevant workshops/farmer days, Internet searches, etc.)

4 Manage appropriate seasonal/year irrigation related work programmes with reference to crop water requirement, crop value, area irrigated and water availability and water quality.

Range: Includes but is not limited to meeting peak/sensitive crop water requirements, adjusting irrigation related programmes to ensure a specific yield quality requirement (i.e. fruit size/labouring/taste), implementation of fertigation programmes, sanitation of micro/drip lines, etc.

Assessment criteria:

- 4.1 Seasonal fertigation programmes to match crop requirement in terms of either/or yield or crop quality are optimised.
- 4.2 Fertigation programmes when water quality changes are adjusted.
- 4.3 Micro/drip pipeline sanitation programmes are recommended and justified.
- 4.4 Sanitation programmes to suit varying water quality are adapted.
- 4.5 Fertigation safety procedures are recommended and evaluated.
- 4.6 Filter operation and maintenance programmes to varying water quality are adapted.
- 4.7 Irrigation system operational efficiency under variable water requirement/fertigation/water quality scenarios is maximised.

- 5 Recommend a safety, servicing and replacement policy of all irrigation systems with reference to expenditure implications.

Range: Includes but is not limited to normal maintenance and replacement of all operational equipment and safety procedures during floods, etc.

Assessment criteria:

- 5.1 The efficiency of all operational equipment on a regular basis is evaluated.
- 5.2 A nozzle replacement programme based on regular CU tests is designed and recommended.
- 5.3 A pump and motor servicing/replacement policy based on annual estimated hours of use is recommended.
- 5.4 Regular pressure and flow checks of all control valves are carried out.
- 5.5 It is at all times ensured, that a critical mass of replacements/spares is serviceable for use in emergency situations.
- 5.6 A major plant safety/evacuation procedure when floods are expected/suddenly experienced is recommended.
(Range: Lifting/removing pumps and motors from river pump stations, isolation of sub stations, etc.)

- 6 Ensure that all irrigation practices are environmentally sensitive (e.g. Eurepgap and related Agreement compliant), specifically in terms of water extractions and return flows.

Range: Includes but is not limited to monitoring and recording of all water extractions and quality as well, where relevant, return flows and quality. On large projects a full input/output of relevant water related data could be required.

Assessment criteria:

- 6.1 A full database of all facets pertaining to water use, water quality, and other relevant water based data; in order to show compliance to any environmentally based Agreement are maintained.
- 6.2 Any possible point sources of pollution are identified and an operational/remedial plan to limit such pollution is prepared.
- 6.3 Contingency plans to limit damage in the event of chemical (fertilizer/cleansing acids, etc.) spills, especially if such spills could be environmentally damaging are prepared.

- 6.4 All staff is familiarised with relevant laws pertaining to general personal and environmental safety.
(Range: Safety clothing, Regulations pertaining to storage/use of chemicals, health, etc.)
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-6.
2. **Teamwork** relates to specific outcomes 1-6.
3. **Self-organisation and management** relates to specific outcomes 1-6.
4. **Information evaluation** relates to specific outcomes 1-6.
5. **Communication** relates to specific outcomes 1-6.
6. **Use science and technology** relates to specific outcomes 1-6.
7. **Inter-relatedness of systems** relates to specific outcomes 1-6.
8. **Self-development** relates to specific outcomes 1-6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Soils, plant physiology, climatic conditions.
2. Different irrigation systems.
3. Influence of irrigation on quality of crop.
4. Environmental issues.
5. Mechanics of pumps and motors.
6. Record keeping.
7. Foreword planning.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.5.4**PLANT PRODUCTION**

TITLE	:	DEVELOP AND IMPLEMENT PLANT MANIPULATION METHODS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Training
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to assist with the development of a plant manipulation management plan and manage its implementation. Learners achieving this unit standard will be able to apply their skills and capacity in a variety of production environments and be able to contribute towards to overall productivity of a production enterprise by maximising growth and yield and maintaining high standards of practice.

Learners will gain specific knowledge and skills in plant manipulation systems and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Manage plant manipulation methods of an agricultural environment

SPECIFIC OUTCOMES

A person assessed as competent against this unit standard will be able to:

1. Identify and incorporate plant manipulation needs into a plant manipulation management plan.
 2. Incorporate framework development principles as part of plant manipulation methods if appropriate
 3. Analyse existing and optimise flower and fruit manipulation principles.
 4. Plan the implementation of the pruning principles as vegetative plant manipulation methods appropriate to the crop.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Maintain the efficiency use of appropriate tools / equipment for pre-determined manipulation method

Range: Manipulation methods include, but are not limited to framework development, flower and fruit manipulation and pruning, etc.
Tools include, but are not limited to pruning shears, tie-back material, trellising and spraying equipment etc.

Assessment criteria:

- 1.1 The efficiency and optimal use of tools and material appropriate to pre-determined manipulation method are maintained.
 - 1.2 The correct growth stage of the plant is ensured according to the pre-determined manipulation method under a variety of familiar and unfamiliar contexts.
 - 1.3 The care and maintenance of equipment used and being responsible for the output of others is coordinated.
2. Incorporate framework development principles as part of plant manipulation methods if appropriate

Range: Trellising methods include, but are not limited to Central leader system, Tatura system, two wire system, slanted cap, factory-cap, Façade system, etc

Assessment criteria:

- 2.1 The growth and yield capacity of the plant by deciding on the trellising and manipulation system of the appropriate crop is optimised.
 - 2.2 The efficiency of the manipulation and trellising system appropriate to the crop according to a considerable range of procedures is maintained.
 - 2.3 The manipulation guidelines of the growing points and bearing units for the appropriate crop and cultivar are optimised and established.
 - 2.4 The shaping of the plant by guidelines of the position of bearing units appropriate to the crop and cultivar is optimised.
3. Analyse existing and optimise manipulation flower and fruit manipulation principles.

Range: Flower and fruit manipulation principles include, but are not limited to, temperature, daylight length, Bud dormancy breakers, thinning, fruit enlargement, ripening, preparation quality improvement methods etc – Chemically and physically

Assessment criteria:

- 3.1 Fruit and flower manipulation principles by analysing other principles are optimised.
 - 3.2 The spraying program for chemically flower/fruit manipulation is optimised.
 - 3.3 The physical manipulation on the fruit and flowers is optimised.
Range: Physical manipulation includes, but is not limited to thinning, shouldering, brushing, shortening, etc.
 - 3.4 The efficiency of the manipulation of fruit and flowers by incorporating the best methods and new technology is maintained.
4. Plan the implementation of the pruning principles as vegetative plant manipulation methods appropriate to the crop.

Range: Pruning includes, but is not limited to summer and winter pruning, canopy management, etc. appropriate to the crop

Assessment criteria:

- 4.1 The pruning as a vegetative plant manipulation method to remove unwanted growth from plant at different growing stages under a variety of familiar and unfamiliar contexts appropriate to the crop and cultivar is optimised and established.
- 4.2 The vegetative manipulation and pruning principles and actions by analysing other principles are optimised.

(Range: Vegetative manipulation includes but is not limited to winter pruning, summer pruning, canopy management, trellising of shoots, etc.)

- 4.3 The efficiency of the vegetative manipulation program and actions by incorporating the best methods and new technology is maintained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to all specific outcomes.
2. **Teamwork:** Relates to all specific outcomes.
3. **Self-Management:** Relates to all specific outcomes.
4. **Interpreting Information:** Relates to all specific outcomes.
5. **Communication:** Relates to all specific outcomes.
6. **Use Science and Technology:** Relates to all specific outcomes.
7. **The world as a set of related systems:** Relates to all specific outcomes.
8. **Self-development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Tools for manipulation of plants.
2. Trellising methods.
3. Flower manipulation and fruit manipulation methods.
4. Pruning methods.
5. The principles of manipulation of a plant.
6. Names and functions of tools and materials.
7. Safe handling procedures of tools and material.
8. Maintaining hygienic procedures of tools and material as to prevent spreading of diseases.
9. Plant physiology and anatomy.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.5.5**PLANT PRODUCTION**

TITLE	:	APPLY INTEGRATED PEST MANAGEMENT PRINCIPLES.
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to recognise common insects, disease symptoms and weeds or know where to have those that are not common identified. Additionally the learner will understand the basic principles of integrated pest management with basic control measures as per agricultural enterprise. The learner will also be able to assist in developing an integrated pest management (IPM) plan for the specific agricultural enterprise.

A learner achieving this standard will be able to identify, monitor and control pests, monitor beneficial arthropods, plant disease symptoms and weeds in a responsible manner by applying Integrated Pest Management Principles to conserve the environment.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal-, plant and mixed farming sub fields. This unit standard focuses on the application of integrated pest management in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards of equivalent:

NQF 4: Apply effective and responsible integrated pest, disease and weed control.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Supervise the monitoring, trapping and recording of pest, disease and/ or weed information for the development of an integrated management plan.
 2. Collate the data for the use in an integrated management plan.
 3. Implement an integrated pest, disease and weed management plan.
 4. Assist with data management for the auditing towards certification for Good Agricultural Practices.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Supervise the monitoring, trapping and recording of pest, disease and/or weed information for the development of an integrated management plan.

Range: Supervision includes but is not limited to making sure that the information is correctly collected or acquired via a reliable source.

Assessment criteria:

- 1.1 The importance of monitoring, trapping and recording of pest, disease or weed information is explained.
- 1.2 The procedure of dealing with unknown pests, diseases or weeds is explained.
- 1.3 The importance for repetitive and uniform collection of the data is discussed.
- 1.4 The troubleshooting that is done to ensure that the correct information is recorded and that traps are serviced regularly is discussed.
- 1.5 The pest, disease and weed control processes that are implemented to ensure that an integrated management approach is adhered to are explained.

- 2 Collate the data for the use in an integrated management plan.

Range: Collating of data includes but is not limited to the collecting of data in a specific way.

Assessment criteria:

- 2.1 The importance and value of receiving data in a particular format are explained.
 - 2.2 Other data that is important for an integrated management plan is described. (Range: Other data can include but is not limited to weather data, tree row volume, and slope of orchard, wind direction etc.)
 - 2.3 The gathering of data from various sources is discussed.
 - 2.4 Pests, beneficials, plant diseases, and symptoms with or without making use of guides or resource material are noticed, identified and integrated.
 - 2.5 Recognize and identify Pests and beneficials on specific crops (all crops), are recognized and identified, pest population levels are counted and monitored over time, as well as the occurrence of beneficials over time, and it is determined when the threshold is reached.
 - 2.6 The data processing and analysing are described.
 - 2.7 The use of the analysed data to develop an integrated pest management plan is explained.
3. Implement an integrated pest, disease and weed management plan.

Range: Integrated management plan includes but is not limited to a plan for the control of pests, diseases and weeds using a range of methods. It includes resistance management strategies.

Assessment criteria:

- 3.1 The different components of an integrated pest, disease and weed management plan (IMP) are described.
 - 3.2 The different control measures that may be used in the management plan are described. (Range: control measures include but are not limited to chemical control, biological control, cultural control, mating disruption, attract and kill, sterile insect technique, baiting and biotechnology).
 - 3.3 The implementation factors of the different control measures are explained.
 - 3.4 Resistance management strategies are discussed.
 - 3.5 The incorporation of a basic health and safety measure as required by law and company policy into the integrated management plan is discussed.
 - 3.6 The taking of control-measures when applying chemicals, causing very little excess chemicals left after spraying and the correct disposal thereof according to law is described.
 - 3.7 Pest populations after spraying are monitored identified and assessed. Possible development of resistance is identified and rectified by selection of resistance management strategy and alternative control measures are recommended. The need for follow-up spraying is determined and the cause of defective control is assessed.
 - 3.8 A decision for a suitable control method with reference to product information is formulated, application recommendations are made, alternative compounds within a resistance management strategy with notice of occurring weather patterns, water quality, soil composition, adjuvants and/or other chemical or product requirements are selected.
4. Assist with data management for the auditing towards certification for Good Agricultural Practices standards.

Range: Data management includes but is not limited to proper and accurate record keeping in an ordered fashion as well as safe and proper storage of

the data. Auditing includes but is not limited to checking and regulating the data according to set norms and values.

Assessment criteria:

- 4.1 The filing system needed or required by GAP standards is described.
- 4.2 The information that GAP standards requests is collected and filed.
- 4.3 How the integrated pest, disease and weed management audit fits in with GAP standards is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1 to 4.
2. **Self-organisation and management** relates to specific outcomes 1 to 4.
3. **Information evaluation** relates to specific outcomes 1 to 4.
4. **Communication** relates to specific outcomes 1 to 4.
5. **Science and Technology**: relates to specific outcomes 1 to 4
6. **The world as a set of related systems**: relates to specific outcomes 1 to 4.
7. **Self-development**: relates to specific outcomes 1 to 4

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Integrated pest management.
2. Chemical control.
3. Bio-control.
4. Cultural control.
5. Degree-day models.
6. Mating disruption.
7. Sterile insect technique.
8. Resistance management and biotechnology.
9. Economic thresholds- and economic injury levels- of pests, diseases and weeds.
10. Principles of pest, disease and weed control.
11. Understanding of pests, beneficial, and insects.
12. Life cycles of various beneficial and pest insects.
13. Life cycles of various weed plants.
14. Identification of a range of diseases, pests and insects.
15. Interpretation of pictograms, colour coding and symbols.

16. Legal implications of misuse / abuse i.e. off-label use.
17. Potential hazards associated with agrochemicals.
18. Cleaning and maintenance of equipment.
19. General symptoms of poisoning.
20. Impact of product on the environment, humans and other organisms.
21. Basic storage principles and requirements.
22. Principles and methods of mixing.
23. Empty container and waste disposal.
24. Emergency procedures.
25. Legislation and Codes of Practice.
26. First aid.
27. Hygiene.
28. Contamination.
29. Product spectrum.
30. Principles of product categorisation and segregations.
31. Resistance and management thereof.
32. Information resources.
33. Terminology.
34. Principles of:
35. Weed control.
36. Plant disease control.
37. Insect control.
38. Nematode control.
39. Agrochemical application.
40. Effective use of standard reference materials and other resources.
41. Reading and understanding labels.
42. Calibration.
43. Principles and procedures of responsible application.
44. Correct use of equipment.
45. Health and safety.
46. Principles of integrated pest management.
47. Environmental knowledge.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.5.7**PLANT PRODUCTION**

TITLE:	:	MANAGE SOIL SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A learner achieving this unit standard will be able to set up and manage a soil fertility and plant nutrition plan.

Learners will gain specific knowledge and skills in soil and plant nutrition and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standard

NQF 4: Implement soil fertility and plant nutrition practices

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Interpret soil and leaf analysis and make appropriate nutrient application recommendations
 2. Optimise soil utilization plan according to crop and soil requirements
 3. Keep all records regarding soil properties and use to build a database for future reference
 4. Design a soil systems management strategy
 5. Create and implement a database for soil management
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Interpret soil and leaf analysis and make appropriate nutrient application recommendations.

Range: A recommendation refers to nutrient application, which includes but is not limited to agrochemical or organic nutrient material.

Assessment criteria:

- 1.1 The ability to interpret soil and leaf analysis is demonstrated.
- 1.2 The ability to make accurate nutrient recommendations based on the interpretation is demonstrated.
- 1.3 The ability to distinguish between nutrient requirements of crops is explained.
- 1.4 Seasonal nutrient requirements of different crops are explained.

2. Optimise soil utilization plan according to crop and soil requirements.

Range: Soil utilisation plan refers to but is not limited to crop establishment but can include conservation areas and infrastructure planning.

Soil depth, drainage, infiltration rate, pH, water holding capacity, field capacity, soil horizons, soil aeration, erosion danger, organic content, active biomass, texture, clay content, structure, biological content, compaction, CEC, CAC, nutrient content, C:N ratios.

Assessment criteria:

- 2.1 The ability to evaluate a soil utilization plan is demonstrated.
 - 2.2 A soil utilization plan in accordance with natural resource availability is designed.
3. Keep all records regarding soil properties and use to build a database for future reference.

Range: Records refer to but not limited to leaf, soil and fruit analysis, soil maps and observations of soil properties and crop yields

Assessment criteria:

- 3.1 Different types of data collected are categorised.
- 3.2 Different types of record keeping systems are described.
- 3.3 An ability to use the information from the database appropriately is demonstrated.
4. Design a soil systems management strategy.

Range: Soil systems refer to but are not limited to soil maps, field histories, slope / contours, mulching, application of nutrients, soil preparation techniques, rehabilitation, erosion control measures, compaction control measures, controlled traffic, and crust formation control measures, chemical, physical and biological properties.

Assessment criteria:

- 4.1 The various components of a soils systems management plan are described.
- 4.2 A soil systems management plan is produced.
- 4.3 The sustainability of a soil management plan is evaluated.

5. Create and implement a database for soil management.

Range: Soil preparation and improvement Method / technique for soil improvement according to soil properties refer to but is not limited to Tillage operations such as mechanical, non mechanical, organic, Minimum and zero Tillage and application of nutrients (liquid and solid)

Assessment criteria:

- 5.1 The different types of soil preparation methods are explained.
- 5.2 Different methods of soil improvement are described.
- 5.3 The suitability of a nutrient management plan in relation to soil conservation, water availability and crop requirements is evaluated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** Relates to all specific outcomes.
2. **Teamwork:** Relates to all specific outcomes.
3. **Self-management:** Relates to all specific outcomes.
4. **Interpreting Information:** Relates to all specific outcomes.
5. **Communication:** Relates to all specific outcomes.
6. **Use Science and Technology:** Relates to all specific outcomes.
7. **The world as a set of related systems:** Relates to all specific outcomes.
8. **Self-development:** Relates to all specific outcomes.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Sampling procedures
2. Chemical, properties of soil – pH, Nutrient status and degradation, C: N relation in soil, Cation Exchangeable Capacity, pH, Cation Absorptive Capacity, Buffering capacity,
3. Physical properties of soil – Texture, structure, soil profiles, crust formation, erosion types, compaction, and degradation
4. Biological properties of soil and processes
5. Soil ecology e.g. soil organisms, food webs, role of water and oxygen in soil
6. Soil health and conservation
7. Role of living organisms
8. Conservation practices – Runoff control, contours,
9. Tillage operations - mechanical, non mechanical, organic, Minimum and zero Tillage and application of nutrients (liquid and solid) *Primary and secondary soil preparation methods, mulching*
10. Soil preparation and fertiliser application equipment
11. Nutrients – Mixtures, limes, calcitic and dolomitic lime, single nutrients and compost, liquids, etc.
12. Calibration of equipment
13. Chemical, physical and biological properties, degradation and rehabilitation
14. Characteristics of the nutrients
15. Role of nutrients in the plant
16. Rules and regulations for storage and handling of agro-chemicals, transport
17. Crop requirements and growth of plants
18. Soil water relationships
19. Mulching and ploughing in of mulch layer
20. Pollution prevention
21. Biological processes
22. Mineral cycles e.g. Nitrogen,
23. Deficiency symptoms
24. Application methods such as fertigation, row applications, broadcast, and leaf applications
25. GAP principles
26. Soil maps
27. Crop rotation and companion planting and their role in soil health,

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.6.1**ELECTIVE**

TITLE	:	MANAGE DAIRY PRODUCTION SYSTEMS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDITS:		10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to plan and manage the operation of a dairy production unit. In addition they will be well positioned to extend their learning and practice into other areas of food production and agriculture.

Learners will gain specific knowledge and skills in dairy production and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Within the context of application, dairy animals include but are not limited to dairy cattle and milk goat and sheep breeds, whichever is applicable to the area of operation. All range statements should be interpreted as relevant to the context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

NQF 4: Implement dairy production operations.

NQF 5: Evaluate Animal Health Systems.

NQF 5: Apply and plan animal nutrition.

NQF 5: Evaluate anatomy and physiology.

NQF 5: Optimise and integrate various farming systems and trends within related enterprises.

SPECIFIC OUTCOMES

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

1. Demonstrate planning and budgeting processes relative to Dairy Production.
 2. Direct operations in the milking parlour.
 3. Manage the herd production cycle.
 4. Manage the feeding program.
 5. "Trouble shoot" and take corrective action.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate planning and budgeting processes relative to Dairy Production.

Assessment criteria:

- 1.1 An understanding of the prediction of the herd profile changes through the year with associated milk production, culling and herd replacement are demonstrated.
- 1.2 The ability to plan feed and other resources to maintain the production program is demonstrated.
- 1.3 The ability to develop a budget is demonstrated.

2. Direct operations in the milking parlour.

Assessment criteria:

- 2.1 The ability to prepare, establish and direct routines for clean milk production in the parlour is demonstrated.
(Range: This includes but is not limited to parlour hygiene; fly control, preparation of the udder, withdrawal of milk unsuited for human consumption and routine health screening procedures as relevant to the context of application).
- 2.2 The ability to manage and control staff is demonstrated.
- 2.3 The ability to manage the installation and maintenance of dairy equipment is demonstrated.
- 2.4 The ability to perform additional dairy parlour management is demonstrated.

3. Manage the herd production cycle.

Assessment criteria:

- 3.1 The ability to maintain a balanced herd profile is demonstrated.
(Range: Herd profile includes but is not limited to the ratio between in-milk and dry animals, replacement animals and culls).
- 3.2 The ability to manipulate the breeding program for optimal production is demonstrated.
(Range: This includes but is not limited to disease control and fertility management).
- 3.3 Knowledge of appropriate culling criteria is demonstrated.

4. Manage the feeding programme.

Range: This includes but is not limited to farm produced feeds and purchased feed

Assessment criteria:

- 4.1 The ability to plan a year round feed flow is demonstrated.
- 4.2 The ability to prepare, manufacture or purchase appropriate feed for different categories of animals is demonstrated.
- 4.3 The ability to direct the effective implementation of the feeding programme is demonstrated.

5. "Trouble shoot" and take corrective action.

Range: This includes corrective action in all farm activities.

Assessment Criteria:

- 5.1 The ability to react to abnormalities in the herd, reflected by routine herd screening is demonstrated.
(Range: This includes but is not limited to mastitis screening and herd disease surveys).
- 5.2 The ability to react to abnormalities in the production of milk and milk product production systems is demonstrated.
- 5.3 The ability to react to fertility problems as revealed by routine procedures and records are demonstrated.
(Range: This includes but is not limited to conception rates, reproduction and metabolic diseases).
- 5.4 The ability to react to changes in quantity and quality in available feed supplies is demonstrated.
- 5.5 The ability to recognize abnormalities due to nutrition is demonstrated.
Range: This includes but is not limited to inadequate weight gain, loss in body condition and metabolic diseases.
- 5.6 The ability to react to mechanical, electrical and water supply breakdown is demonstrated.
- 5.7 The ability to make use of external resources is demonstrated.

Range: This includes but is not limited to electrician, mechanic, plumber, extension officer, veterinarians, and nutritionist.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

1. Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
2. Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
3. Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to outcomes 1 – 5.
2. **Teamwork** relates to outcomes 1 – 5.
3. **Self-management** relates to outcomes 1-5.
4. **Communication** relates to outcomes 1 – 5.
5. **Interpreting information** relates to outcomes 2 – 5.
6. **Use science and Technology** relates to outcomes 1-5.
7. **The world as a set of related systems** relates to outcomes 1 – 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Systems
2. The relevance between animal health and reproduction.
3. The relevance between animal nutrition and animal health.
4. Report writing.
5. Keeping records and acting accordingly to obvious problems in the production unit.
6. Planning and executing a budget.
7. Animal disease treatment.
8. The purpose of the development, implementation and maintenance of procedures and programmes.
9. The procedures involved in the executing of programmes.
10. All relevant legislation, rules, principles and codes of conduct applicable to the development, implementation and maintenance of a dairy production unit.
11. The Agricultural Pests Act (Act 36 of 1983) and related regulations.
12. Develop a two-way relationship with supervisor and co-workers in regard to responsibilities and reporting (Communication Skills).

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 5.6.2**ELECTIVE**

TITLE	:	MANAGE HIVE PLACEMENT AND BEE POLLINATION
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	2
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learner achieving this unit standard will be able to manage bee pollination of agricultural and environmental crops. In addition they will be well positioned to extend their learning and practice into other areas of beekeeping, environmental management and agriculture.

Learners will gain specific knowledge and skills in beekeeping and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 4: Develop Bee Sites.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Understand and identify the botanical systems of agricultural and environmental plants related to reproductive biology and pollination
 2. Identify and understand plant production systems and the effects of bees on production and the subsequent pollination efficacy in bees
 3. Identify and utilise opportunities in the plant production environment that will allow the placement of bees for pollination services.
 4. Understand and implement the logistical systems related to pollination services.
 5. Identify, understand and implement specific management of bees to effect efficient and effective pollination services, depending on the target plants requiring insect pollination.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Understand and identify the botanical systems of agricultural and environmental plants related to reproductive biology and pollination.

Range: Botanical systems related to reproductive biology include but are not limited to the flower and all parts thereof (male and female) such as stamens, ovaries, pollen, pollen tubes, styles, calyx and florets and nectarines, perfect and imperfect flowers, pollen release, stigma receptivity, monoecious and dioecious flowers.

Assessment criteria:

- 1.1 Plant pollination and reproductive biology with special reference to flower types and structures are understood and described.
 - 1.2 Flower advertisement and reward are understood and described.
 - 1.3 Pollination agents and their biology with specific reference to the mechanisms that enable them to perform are understood and described.
(Range: pollinating agents include but are not limited to wind, water, insects, mammals, birds and gravity).
 - 1.4 All natural factors that affect efficiency and effectiveness of pollination, fertilisation and fruit set are understood.
2. Identify and understand plant production systems and the effects of bees on production and the subsequent pollination efficacy.

Range: Plant production systems include but are not limited to agricultural seed, vegetable and fruit production, germplasm collections and natural vegetation, covered versus open crops.

Assessment criteria:

- 2.1 Plant production systems are understood and described.

- 2.2 The effects of bees used for pollination on plant production systems and their products are understood and described.
- 2.3 The effects of plant production systems on bees are understood and described.
(Range: effects on bees include but are not limited to stress factors, toxicity, and damage, loss of honey, attractants and repellents).
- 3 Identify and utilise opportunities in the plant production environment that will allow the placement of bees for pollination services.

Range: Plant production systems include but are not limited to agricultural seed, vegetable and fruit production, germplasm collections and natural vegetation.

Assessment criteria:

- 3.1 Opportunities in pollination services that will provide placements for bees are identified.
- 3.2 Opportunities in pollination service using acceptable business principles are utilised.
- 3.3 The inherent business and personal risks involved in placing bees for pollination are understood.
- 4. Understand and implement the logistical systems related to pollination services.

Range: Logistics include but are not limited to factors related to transport technology, human resource management and site and placement preparation, utilisation and access and communication and contracting methodologies.

Assessment criteria:

- 4.1 The logistics involved in the preparation of bees for pollination are understood, illustrated and described.
- 4.2 The logistics involved in the provision of bees for pollination are understood, illustrated and described.
- 4.3 Formalise agreements and communications.
(Range: agreements include but are not limited to verbal agreements and contracts).
(Range: agreement contents can include but are not limited to number of colonies, parties, type, identification and duration of crop, risk management relating to delivery, damage, safety, security and agro-chemical applications).
(Range: communication includes but is not limited to regular continuous telephonic communication before, during and after the pollination period, provision of orders, agreements, invoices and forward budgeting forms).
- 4.4 Implement logistic principles in the management of bees for pollination.
- 5. Identify, understand and implement specific management of bees to effect efficient and effective pollination services, depending on the target plants requiring insect pollination

Range: Special management of bees for pollination include but are not limited to queen presence and pheromone manipulation and evaluation,

management of the hive to prevent leakage and ample ventilation, replacement of inappropriate comb and frame structures, removal of surplus feed stores, evaluation and manipulation of colony strength, stimulatory supplementary feeding.

Assessment criteria:

- 5.1 The biological systems of bees that relate specifically to nectar and pollen collection and utilisation are understood, illustrated and described.
- 5.2 The factors that affect efficient and effective pollination of plant production systems by bees including the implementation of standards are understood, illustrated and described.
- 5.3 Biological principles in the management of bees for pollination are implemented.
- 5.4 The use of commercial plant pollination systems is understood.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.

- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 to 5.
2. **Teamwork:** relates to specific outcomes 2 to 5.
3. **Self Organisation and Management:** relates to specific outcomes 1 to 4.
4. **Communication:** relates to specific outcomes 2 to 5.
5. **Personal Development:** relates to specific outcomes 1 to 5.
6. **Interpretation of information:** relates to specific outcomes 1 and 4.
7. **The world as a set:** relates to specific outcomes 1 to 5.
8. **Science and technology:** relates to specific outcomes 1 and 5.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Comprehension, identification and understanding of the specific nectar and pollen bearing plant species.
2. Plant botany and pollination science.
3. Sensory observation and evaluation of bee plant pollination.
4. Logistics of the management and provision of pollination services.
5. Agricultural and natural chemical systems and processes involved in pollination biology.
6. Bee biology and management.
7. Pollination services as an animal product.
8. Evaluation of the potential of bee placements for pollination services.
9. The purpose of learning about providing pollination services.
10. Basic agricultural infrastructure.

11. Public relations.
12. Basic record keeping.
13. Observation of sensory cues in plants and bees.
14. Evaluation of business risks.

SUPPLEMENTARY INFORMATION

NOTES

END -

LEVEL 5.6.3**ELECTIVE**

TITLE	:	THE OPTIMISATION OF AGRI / ECOTOURISM STRENGTHS AND OPPORTUNITIES AND NEGATION OF THREATS AND WEAKNESSES
SAQA	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	6
FIELD	:	AGRICULTURE AND CONSERVATION
SUB-FIELD	:	PRIMARY AGRICULTURE
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The learners achieving this unit standard must demonstrate an ability to optimize and implement the enterprise's strategic environment into effective business plans. In addition they will be well positioned to extend their learning and practice into other areas of strategic thinking and management, thereby providing valuable inputs into managerial decision-making.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 4: Demonstrate the ability to recognize agri/eco tourism's strategic environment.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Collate strategic inputs from all relevant information sources into a strategic/business plan.
2. Disseminate action plan(s) to the operational level of the Agri/Ecotourism business.
3. Implement the actions plans.
4. Monitor and evaluate the strategic plan for all components in successful Agri / Ecotourism business.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Collate strategic inputs from all relevant information sources into an integrated strategic/business plan.

Range: Internal and external information sources; strengths, weaknesses, opportunities, threats

Assessment criteria:

- 1.1 The ability to source strategic information from both internal and external information sources regarding the strengths, weaknesses, opportunities and threats of the agri/ecotourism venture is demonstrated.
 - 1.2 The ability to collate the strategic inputs into an integrated format is demonstrated.
 - 1.3 Evidence regarding personal inputs into the development of a strategic business plan is provided.
 - 1.4 The ability to develop action plans with the necessary budgets, time and responsible persons allocation is demonstrated.
2. Disseminate action plan(s) to the operational level of the Agri/Ecotourism business.

Range: Written document.
Verbal communication at all levels.

Assessment criteria:

- 2.1 The ability to disseminate/communicate the action plans to the operational levels of the Agri/Ecotourism business is demonstrated.
 - 2.2 The ability and willingness to delegate responsibilities to identified responsible employees is demonstrated.
 - 2.3 The ability to keep these implementation agents focused and motivated to adhere to the identified targets is demonstrated.
3. Implement the action plans.

Range: Written and verbal

Assessment criteria:

- 3.1 Evidence of a strategy to implement the action plan(s) is provided.
- 3.2 Evidence of the control measures put into place to ensure compliance with the plan is provided.
- 3.3 The ability to allow effective communication channels between management and those responsible for the implementation of the action plans is demonstrated.
4. Monitor and evaluate the strategic plan for all components in successful Agri/Ecotourism business.

Range: Written and verbal.

Assessment criteria:

- 4.1 Evidence of the monitoring and evaluation systems build into the strategic plan is provided.
- 4.2 Evidence of corrective/remedial steps taken to adapt the strategic plan to a changing environment is provided.
- 4.3 A willingness and ability to effectively communicate these changes to all relevant stakeholders both internally and externally of the venture is demonstrated.
- 4.4 The ability to react timeously in the implementation of identified changes is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem-solving** relates to specific outcomes 1-4.
2. **Teamwork** relates to specific outcomes 1-4.
3. **Self-organization and management** relates to specific outcomes 1-4.
4. **Information evaluation** relates to specific outcomes 1-4.
5. **Communication** relates to specific outcomes 1-4.
6. **Use science and technology** relates to specific outcomes 1-4.
7. **Inter-relatedness of systems** relates to specific outcomes 1-4.
8. **Self-development** relates to specific outcomes 1-4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Effective communication.
2. Problem-solving.
2. Strategic/business planning.
3. Information gathering and data processing.
4. Interpretation for use in strategic planning processes.
5. Development and communication of action plan(s).
6. Implementation procedures and processes.
7. Monitoring and evaluation strategies.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.6.4**ELECTIVE****TITLE****EVALUATE AND COORDINATE AREA WIDE
SUSTAINABLE WILD FLOWER HARVESTING**

SAQA LOGO

:

UNIT STANDARD NO

:

UNIT STANDARD LEVEL

:

5

CREDIT

:

8

FIELD

:

Agriculture and Nature Conservation

SUB-FIELD

:

Primary Agriculture

ISSUE DATE

:

REVIEW DATE

:

PURPOSE

The learner achieving this unit standard will be able to evaluate and coordinate area wide sustainable wild flower harvesting in support of the landowner and industry.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 4: Plan and maintain environmentally sound agricultural practices.

NQF 4: Implement a natural resource management plan.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate a detailed knowledge of sustainable harvesting practises and ecosystem sustainability.
2. Recommend compliance procedures to landowners and contractors.

3. Input into relevant legislation and policy reform.
 4. Develop appropriate training programs and manage a regional wild flower harvesting plan, incorporating habitat management.
 5. Inform landowners of market and industry trends.
 6. Manage and evaluate spatial and non-spatial data on a regional scale to support and promote best practices.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

- 1 Demonstrate a detailed knowledge of sustainable harvesting practises and ecosystem sustainability.

Range: Sustainable harvesting and ecosystem sustainability within an area wide context.

Assessment criteria:

- 1.1 Knowledge on harvestable plants and their marketing potential on an area wide level is demonstrated.
- 1.2 An understanding of harvesting principles on different guilds of plants is demonstrated.
- 1.3 A good understanding or collection of data on active ecosystems within an area wide context is demonstrated.
- 1.4 A good understanding of ecosystem functioning and sustainability is demonstrated.
- 1.5 The ability to do a resource assessment on harvestable plants within an area wide context is demonstrated
- 1.6 The ability to compile a regional harvesting plan is demonstrated.
- 1.7 The ability to interact on farm level to make recommendations to a harvesting plan on farm level aligned with an area wide harvesting strategy/plan is demonstrated.
- 1.8 The ability to review and update current harvesting practices and make recommendations to developing and developed market is demonstrated.
- 1.9 The ability to reflect current harvesting practises against new research and initiate potential research projects is demonstrated.

2. Recommend compliance procedures to landowners and contractors.

Range: Relevant legislation material to the harvesting operation should be communicated to landowners and contractors.

Assessment criteria:

- 2.1 A good knowledge of compliance requirements pertaining to harvesting operations is demonstrated.
- 2.2 The ability to assess harvesting operations to meet their compliance requirements and make recommendations is demonstrated.

3. Input into relevant legislation and policy reform.

Range: Relevant legislation pertaining to the harvesting operation within an area wide context

Assessment criteria:

- 3.1 A good knowledge of relevant legislation pertaining to harvesting operations is demonstrated.
- 3.2 The ability to correctly inform or bring in parties that can assist further consultation is demonstrated.
- 3.3 The ability to assess harvesting operations to meet legislative requirements and make recommendations is demonstrated.
- 3.4 The ability to interact or have in put on legislation and policy is demonstrated.

4. Develop appropriate training programs and manage a regional harvesting plan, incorporating habitat management.

Range: Develop training program specific to the harvesting operation within an area wide context.

Assessment criteria:

- 4.1 The ability to do a training need assessment with relation to harvesting operation and incorporate within a regional plan is demonstrated.

5. Inform landowners of market and industry trends.

Range: Marketing potential of harvesting products & related industry trends area wide context

Assessment criteria:

- 5.1 Knowledge of market potential of harvesting species within an area is demonstrated.
- 5.2 An understanding of the potential influence both positive and negative the industry has on natural resource is demonstrated.

6. Manage and evaluate spatial and non-spatial data on a regional scale to support and promote best practices.

Range: Spatial & non-spatial data within an area wide context should be managed and evaluated

Assessment criteria:

- 6.1 A good knowledge of operating spatial & non-spatial data is demonstrated.
- 6.2 The ability to analyse spatial & non-spatial data is demonstrated.
- 6.3 The ability to use spatial & non-spatial data into a regional strategic plan is demonstrated

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-6.
2. **Self-organisation and management** relates to specific outcomes 1-6.
3. **Information evaluation** relates to specific outcomes 1-6.
4. **Communication** relates to specific outcomes 1-6.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Basic management.
2. Basic financial management.
3. Basic market readiness.
4. Occupational Health & Safety.
5. Labour law.
6. Basic ecological principles.
7. Basic species identification.
8. Ecological sustainable methods of harvesting.
9. Basic fire fighting.
10. Basic first Aid.
11. Resource management.
12. Risk management.
13. Basic conflict resolution and management.
14. SDF, IDP ext. processes.
15. Strategic & Regional planning processes.
16. Basic map reading.
17. GIS use.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.6.5**ELECTIVE**

TITLE : **THE EFFECTIVE AND RESPONSIBLE ARIAL APPLICATION OF AGROCHEMICAL PRODUCTS**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 5

CREDIT : 14

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A person achieving this unit standard will be able to apply agrochemicals in an effective and responsible manner using an aerial application method. Furthermore, the person will be able to give the necessary consideration to the impact of his/her decisions on the environment, fellow human beings and the broader community.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 4: Apply effective and responsible pest, disease and weed control.

NQF 5: Apply integrated pest management principles.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate an understanding of the principles of aerial application of agrochemical products.
 2. Demonstrate an understanding of the legal and regulatory aspects of aerial application of agrochemical products.
 3. Analyse and evaluate the spraying performance of the aircraft and implement the necessary technological modifications.
 4. Demonstrate an understanding of and implement effective and responsible flying skills.
 5. Manage effective and responsible preparation of spray mixture.
 6. Deal with emergencies.
 7. Perform post-operational practices.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate an understanding of the principles of aerial application of agrochemical products.

Range: Aerial application includes but is not limited to the spraying of chemicals, releasing of mass produced sterile insects, baiting, using an aircraft, etc.

Assessment criteria:

- 1.1 The type, properties and limitations of agrochemicals, products or elements to be applied and the implications thereof on selection and application is described.
- 1.2 The type and properties of targeted crop and its requirements and the implications thereof on the selection and application of agrochemicals is explained.
- 1.3 Droplet behaviour, droplet dynamics and aerodynamics and the implications thereof on the aerial application of agrochemicals are explained.
- 1.4 The effect of temperature, humidity, water quality and wind on the aerial application of agrochemical products is explained.
- 1.5 The considerations that need to be taken with regards to wild life in the area, sensitive ecosystems, water bodies, factors influencing drift, potential contamination and ferry behaviour and the impact thereof on aerial application of agrochemical products are explained.

2. Explain legal and regulatory aspects of aerial application of agrochemical products.

Range: Legal and regulatory aspects include but are not limited to the laws of operating an aircraft and the legal aspects governing the application of agrochemical products.

Assessment criteria:

- 2.1 The legal and regulatory requirements for the aerial application of agrochemicals is explained.

- 2.2 The legal and regulatory limitations for the aerial application of agrochemicals are discussed.
 - 2.3 The implications of Act 36 of 1947 on the aerial application of agrochemicals is explained.
 - 2.4 Environmental law governing the aerial application of agrochemicals is discussed.
3. Analyse and evaluate the spraying performance of the aircraft and implement the necessary technological modifications. (Equipment, calibration, monitoring during application).

Range: Analysis and evaluation of spray performance of the aircraft may include but is not limited to the calibration of the equipment, the amount of water etc.

Assessment criteria:

- 3.1 An understanding of how the aircraft's dispensing unit is checked to establish that it is in correct working condition is demonstrated.
 - 3.2 The calibration of equipment is described.
 - 3.3 An interpretation of a graphical representation is provided.
 - 3.4 An understanding of how the above information impacts on the modification of the design of the dispensing system such as nozzles and boom are demonstrated.
 - 3.5 Determination of the flow rate and monitoring of the dispensing system are demonstrated.
4. Demonstrate an understanding of and implement effective and responsible flying skills.

Range: Effective flying skills include but are not limited to height, direction speed and formation.

Assessment criteria:

- 4.1 Maintaining optimum spraying height is explained.
 - 4.2 An understanding of how optimum flying speed with regard to aircraft altitude and target is maintained, is demonstrated.
 - 4.3 Safe turns are explained.
 - 4.4 Flight safety is explained in terms of maintaining air-worthiness of craft, scouting of the area, good knowledge of obstacles and potential hazards, topography and density altitude.
 - 4.5 An understanding of how the spray valve is opened with regard to aircraft position is demonstrated.
5. Manage effective and responsible preparation of spray mixture.

Range: Spray mixture includes but is not limited to the mixing of agrochemical, water and wetting products.

Assessment criteria:

- 5.1 The correct mixing procedure for the specific agrochemical as per crop to be treated is explained.
- 5.2 The application of the correct quantity of agrochemical is explained.
- 5.3 The correct and safe loading techniques are demonstrated.
- 5.4 The method of determining compatibility of chemicals is explained.
- 5.5 The correct use of protective clothing is explained.
- 5.6 The correct safety precautions are explained.

6. Deal with emergencies.

Range: Emergencies could include but are not limited to leaks, spills, mechanical problems etc.

Assessment criteria:

- 6.1 The correct procedures of how chemical spills are contained, absorbed, collected and disposed are explained.
- 6.2 A strategy to address aircraft performance problems is explained.
- 6.3 The treatment of human and wildlife poisonings are described.
- 6.4 An emergency plan is described.

7. Perform post-operational practices.

Range: Post operational practices may include but is not limited to the disposing of excess product, cleaning and storing of equipment.

Assessment criteria:

- 7.1 The process of cleaning and /or sanitising the equipment is demonstrated or described.
- 7.2 The disposal of rinse water is described.
- 7.3 The record keeping procedure involved in aerial application of agrochemicals is explained.
- 7.4 The importance of records with respect to auditing and what the farming enterprise receives is described.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.

Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-6.
2. **Teamwork** relates to specific outcomes 5-7.
3. **Self-organisation and management** relates to specific outcomes 1-6.
4. **Information evaluation** relates to specific outcomes 1-5.
5. **Communication** relates to specific outcomes 4-6.
6. **Use of science and technology** relates to specific outcomes 1-4.
7. **Inter-relatedness of systems** relates to specific outcomes 1-4.
8. **Professional development** relates to specific outcomes 1-7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a working knowledge of:

1. Interpretation of pictograms, colour coding and symbols.
2. General legal implications of misuse/ abuse i.e. off-label use.
3. Potential hazards associated with agrochemicals.
4. Cleaning and maintenance of equipment.
5. General symptoms of poisoning.
6. Impact of product on the environment, humans and other organisms.
7. Basic storage principles and requirements.
8. Principles and methods of mixing.
9. Empty container and waste disposal.
10. Emergency procedures.
11. Legislation and Codes of Practice.
12. First aid.
13. Hygiene.
14. Contamination.
15. Product spectrum.
16. Principles of product categorisation and segregation.
17. Resistance and management thereof.
18. Terminology.
19. Principles of pest, weed, disease and nematode control.
20. Effective use of standard reference material and other resources.

21. Reading and understanding labels.
22. Calibration.
23. Principles and procedures of responsible application.
24. Correct use of equipment.
25. Health and safety.
26. Principles of integrated pest management.
27. Environmental knowledge.
28. Information resources.
29. Storage requirements.

SUPPLEMENTARY INFORMATION

NOTES

The person must have a valid and current commercial pilots licence. The person should also be registered with the national department of agriculture as being competent to make decisions on which agrochemicals to apply and at what rate and frequency.

END

LEVEL 5.6.6**ELECTIVE**

TITLE : **EFFECTIVE AND RESPONSIBLE ADVICE,
RECOMMENDATION AND SALE OF
AGROCHEMICAL PRODUCTS**

SAQA LOGO :

UNIT STANDARD NO :

UNIT STANDARD LEVEL : 6

CREDIT : 12

FIELD : Agriculture and Nature Conservation

SUB-FIELD : Primary Agriculture

ISSUE DATE :

REVIEW DATE :

PURPOSE

A person achieving this unit standard will be able to give advice, make recommendations and sell agrochemicals in an effective and responsible manner, giving the necessary consideration to the impact of his/her decisions on the well being of human and animal health and the environment.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 4: Apply effective and responsible pest, disease and weed control.

NQF 5: Apply integrated pest management principles.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Advise on the management of an agrochemical storing facility.

2. Classify and categorise insects, pests and weeds affecting the agricultural enterprise or assist with having these classified.
 3. Apply an in-depth knowledge of integrated pest management (IPM).
 4. Apply an in-depth knowledge on the different methods of product application and the identification of related problems.
 5. Execute post-application monitoring.
 6. Advise on environmental and community considerations.
 7. Make effective, economical, responsible and legal recommendations on product selection and use.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Advising on the management of an agrochemical storing facility.

Range: Advising on the management of an agrochemical store includes but is not limited to safety plans, record keeping, arrangement of store, protective gear and equipment, ventilation, lighting, the different rules and regulations governing a chemical store.

Assessment criteria:

- 1.1 The type of advice that should be provided to a farmer wanting to build a chemical store is explained.
 - 1.2 The requirements of a storage facility as governed by the act on agrochemical products is described.
 - 1.3 The ability to develop a plan for the storage of agrochemical products is demonstrated.
 - 1.4 The development and implementation of an emergency and safety plan is described.
 - 1.5 The development of an access and security plan is described.
 - 1.6 The management of the record keeping of all these different components are discussed.
-
2. Classify and categorise insects, pests and weeds affecting the agricultural enterprise or assist with having these classified.

Range: Classifying and categorising will include but is not limited to pest or predator, or problem or possible problem. Method of identification includes but is not limited to macroscopic, microscopic, and chemical

Assessment criteria:

- 2.1 An understanding of which types of guides/publications that are available and where they can be found, to assist with identification is demonstrated.
- 2.2 The types of symptoms of disease, damage by insects or pests and problems caused by weeds and how this assists with identification and a plan of action is explained.
- 2.3 An understanding of which institutions are available to assist with identification or what other means to verify a problem can be implemented is demonstrated.

- 2.4 The management processes that are in place to train staff in monitoring, damage assessments and interpreting of data is explained.
- 2.5 The plans that are in place for pro-active warning or advice on expected outbreaks and infestations and how these are based on weather data, environmental conditions, life cycles of pests, diseases and crops are explained.
3. Apply an in-depth knowledge of integrated pest management (IPM).

Range: Integrated pest management includes but is not limited the integration of a number of different pest, disease and weed management strategies to satisfy the market and keep the problems under control in an environmentally sound and sustainable manner.

Assessment criteria:

- 3.1 An understanding of how information on the latest technology in integrated pest, disease and weeds management can be acquired is demonstrated.
 - 3.2 The type of publications available for assistance in IPM is described.
 - 3.3 The different policies and principles of IPM and how they are integrated into an integrated production management plan is described.
 - 3.4 Resistance to the CCP's, the components of a resistance management plan and its implementation are explained.
 - 3.5 The integration of different chemicals with certain biological control components is explained.
4. Apply an in-depth knowledge on the different methods of product application and the identification of related problems.

Range: Products may include but are not limited to different agrochemicals. Application includes but is not limited to aerial, fogging, dipping, baiting, spraying etc.

Assessment criteria:

- 4.1 An understanding of the contents of a label on an agrochemical and a description of how it will be applied as per agricultural enterprise with reference to market requirements is demonstrated.
- 4.2 The different application methods in relation to the chemicals and the crop including information on aerial application are described.
- 4.3 The different specialised ways of which equipment is calibrated and what the result will be with reference to cover, droplet size etc is demonstrated.
- 4.4 An understanding of how pest control failures are analysed and interpreted with reference to application, weather, type of product, timing, crop, slope etc is demonstrated.
- 4.5 An understanding of how advice is given on mixing compatibility of products is demonstrated.
- 4.6 An understanding of how advice is given on product and technology compatibility is demonstrated.

5. Execute post-application monitoring.

Range: Post-application monitoring includes but is not limited to the checking on the efficacy of the product, damage to the crop, damage to the environment etc.

Assessment criteria:

- 5.1 A plan to check the efficacy of the product with reference to trap catches, return of pest, etc is explained.
- 5.2 Monitoring and identification of the follow-up generation is described.
- 5.3 The determination and monitoring of side effects and/or damage is described.
- 5.4 The need for testing to determine maximum residue limited and toxicity is explained.
- 5.5 Plans implemented to test longevity of the product is explained.

6. Advise on environmental and community considerations.

Range: Environmental and community consideration may include but is not limited to plans to avoid poisonings, pollution, spills etc and how to deal with them.

Assessment criteria:

- 6.1 An understanding of the type of advice given on the management of potential poisoning of wildlife, beneficials and humans and how it can be avoided is demonstrated.
 - 6.2 The type of advice given to prevent potential soil and water contamination is described.
 - 6.3 The type of advice given to avoid potential drift onto non-target areas is described.
 - 6.4 The types of plans that are devised with managers to deal with empty container disposal and rinse water management are described.
 - 6.5 The type of advice given to aerial applicator/farmer on how to issue appropriate warnings for aerial application is explained.
7. Make effective, economical, responsible and legal recommendations on product selection and use.

Range: Product selection includes but is not limited to type of agrochemical, what type of application, when and how to apply.

Assessment criteria:

- 7.1 The type of recommendation and the different formats and ways in which it can be issued are described.
- 7.2 The different legal implications, which accompany giving advice on CCPS is explained.
- 7.3 The different aspects that need to be considered when making a recommendation is explained (i.e. economy of scale etc.)
- 7.4 The approach to recommendations made in accordance with label instructions is explained.
- 7.5 The maintenance of high ethical standards as an advisor is explained.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes, critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.

Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.

Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem solving** relates to specific outcomes 1-7.
2. **Teamwork** relates to specific outcomes 1 and 5.
3. **Self-organisation and management** relates to specific outcomes 1-7.
4. **Information evaluation** relates to specific outcomes 2-7.
5. **Communication** relates to specific outcomes 1-7.
6. **Use of science and technology** relates to specific outcomes 2-7.
7. **Inter-relatedness of systems** relates to specific outcomes 3-5 and 7.
8. **Professional development** relates to specific outcomes 1-7.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a working knowledge of:

1. Interpretation of pictograms, colour coding and symbols.
2. Legal implications of misuse / abuse i.e. off-label use.
3. Potential hazards associated with agrochemicals.
4. Cleaning and maintenance of equipment.
5. General symptoms of poisoning.
6. Impact of product on the environment, humans and other organisms.
7. Basic storage principles and requirements.
8. Principles and methods of mixing.
9. Empty container and waste disposal.
10. Emergency procedures.
11. Legislation and Codes of Practice.
12. First aid.
13. Hygiene.
14. Contamination.
15. Product spectrum.
16. Principles of product categorisation and segregations.
17. Resistance and management thereof.
18. Information resources.
19. Terminology.

20. Principles of: weed, plant disease, insect and nematode control.
21. Agrochemical application.
22. Effective use of standard reference materials and other resources.
23. Reading and understanding labels.
24. Calibration.
25. Principles and procedures of responsible application.
26. Correct use of equipment.
27. Occupational health and safety.
28. Principles of integrated pest management.
29. Environmental knowledge.

SUPPLEMENTARY INFORMATION

NOTES

This is probably a certificate on its own however it needs the support of recognition of prior learning if the person has been working in a chemical store with storage, issuing and managing. If the person was a farm manager and has dealt with all the aspects of pest and disease control then he/she may also be in the position to qualify to do this unit standard.

END

LEVEL 5.6.7**ELECTIVE**

TITLE	:	DEVELOP, IMPLEMENT AND MANAGE A PERMACULTURE SITE DESIGN
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

The primary purpose of this unit standard is to provide for specialisation in the field of Permaculture. It provides learners from a wide range of agricultural disciplines with an in-depth range of conceptual thinking skills and practical applications that contribute to sustainable living and agricultural practices. On completion of this Unit Standard learners will be able to plan an elementary sustainable system based on Permaculture principles.

The unit standard can be used as the foundation for skills development programmes in the field of sustainable agriculture as well as an elective component of other qualifications.

Learners will gain specific knowledge and skills in permaculture and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 4: Supervise the implementation of a Permaculture site design.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Optimise site resources and productivity by integrating elements on a specific site.
 2. Maximise the use of local biotic and abiotic resources on a specific site.
 3. Integrate ecological processes and cycles on a specific site.
 4. Integrate sustainable living practices into the plans for a specific site.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Optimise site resources and productivity by integrating elements on a specific site.

Range: Site resources include, but are not limited to, soil, water, plants, animals, air (wind), and energy (including human energy).

Site elements refer to, but are not limited to, the components of a design, such as nurseries, water harvesting, orchards, aquaculture and other production areas. Different site designs will incorporate different elements because what is appropriate for one geographical area is not necessarily appropriate in another.

Productivity refers to the balance between inputs and outputs, i.e. the total yield of the site is considered in a holistic sense, rather than individual elements in isolation.

Assessment criteria:

- 1.1 All relevant site resources are identified.
- 1.2 All site resources are fully utilised.
- 1.3 Sites needs (such as energy, water, income generation and fertile soil) are met in more than one way.
- 1.4 Site elements are appropriate for the conditions of the specific site.
- 1.5 Site elements have been analysed and their inter-relationships with other elements are established.
- 1.6 Zones and sectors are identified and located appropriately.

(Range: Zoning refers to ergonomic planning. Sectors refer to the potential threats on a particular site, including, but not limited to fire, flood, wind and theft).

- 1.7 The slope, aspect, elevation and orientation of the site have been taken into account.
- 1.8 Biodiversity is developed.

- 2. Maximise the use of local biotic and abiotic resources on a specific site.

Range: Biotic resources refer to all living organisms. Abiotic resources refer to all aspects of the non-living environment and include, but are not limited to air, wind, sun, water, soil, and climate.

Assessment criteria:

- 2.1 Inputs are sourced on-site, or locally, wherever possible.
 - 2.2 Household, plant and animal wastes are recycled using living organisms, either through compost, mulch, worm farms or other appropriate means.
 - 2.3 Local resources are used as building materials where appropriate.
 - 2.4 Where appropriate, site energy needs are met through the harvesting of sunlight, wind, biogas and/or a woodlot.
 - 2.3 Indigenous plant species that can perform specific functions are identified.
 - 2.4 Appropriate living organisms (animals, insects and fowls) are selected to fulfil specific functions to achieve the enterprise plans.
- 3. Integrate ecological processes and cycles on a specific site.

Range: Ecological processes refer to energy flow and food webs, succession, and edge effects. Cycles refer to the mineral and water cycles.

Assessment criteria:

- 3.1 A soil management plan is developed that incorporates the use of animal and plant wastes to create fertile soil.
 - 3.2 An integrated pest control plan is created.
(Range: Integrated pest control may include, but is not restricted to: predator refuges, companion planting, guilds, and organic sprays.)
 - 3.3 A plan to conserve and harvest water is developed.
(Range: Water conservation refers to water-wise practices, reducing water use, harvesting grey and black water, and preventing water pollution. Grey water refers to any water that has been used for washing or cleaning (and if harvested, it should contain no toxic chemicals). Grey water harvesting can be directly onto fruit-bearing plants, such as fruit trees, or onto other plants if it has gone through a series of flow forms or a similar purification process. Black water refers to human effluent or sewage.)
 - 3.5 A plant succession plan is developed.
 - 3.6 Appropriate plant species are selected to fulfil the primary functions of the site.
- 4. Integrate sustainable living practices into the plans for a specific site.

Range: Sustainable living practices refer to the integration of social, economic, political and abstract components:

Social Components can include but are not limited to: Innovative settlement patterns such as eco-villages; the use of appropriate technology (e.g. solar energy, biogas digesters, flow forms for water purification, ram pumps, and wind energy); the dissemination of knowledge, skills and information.

Economic components include, but are not limited to: Local Employment Trading Systems; the establishment of cooperative community markets; community-supported agriculture systems.

Political components include, but are not limited to: The development of cluster groups as forums for discussion, representation and innovation; the development of

Assessment criteria:

- 4.1 The purpose and primary functions of the enterprise are identified and listed.
 - 4.2 The needs of the surrounding community are identified, listed, and as appropriate, incorporated into the plans for the enterprise.
 - 4.3 The local economy is supported through either purchasing from local suppliers or by trading informally (such as through a LETS programme).
 - 4.4 The inputs used on the site are environmentally friendly and non-toxic (e.g. paints, chemicals, and cleaning agents).
 - 4.5 The cost of implementing the design has been calculated.
 - 4.6 A plan for the financial sustainability for the site has been developed.
-

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **1. Problem Solving:** relates to specific outcomes 1 and 2.
2. **2. Teamwork:** relates to specific outcome 2.
3. **3. Self-management:** relates to specific outcomes 1 and 2.
4. **4. Interpreting Information: relates** to specific outcomes 1, 3 and 4.
5. **5. Communication:** 1, 3 and 4.
6. **6. Use Science and Technology:** relates to specific outcomes 1 – 4.
7. **7. The world as a set of related systems:** relates to specific outcomes 1 – 4.
8. **8. Self-development:** relates to specific outcomes 1 and 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. The chemical interactions between the roots of different plants.
2. The role of legumes in the nitrogen cycle.
3. The functions and attributes of the plants that form a guild.

4. The procedure and methods to make and apply liquid nutrients using manure and various plants.
5. The sources, properties and purposes of mulch.
6. The names and purposes of soil nutrients.
7. Organic sources of soil nutrients.
8. The attributes of altitude, latitude and slopes in relation to climate.
9. The properties of wind movements.
10. The influence large bodies of water have on local climate.

SUPPLEMENTARY INFORMATION

Permaculture – A Designer’s Manual, Tagari Publications, and Introduction to Permaculture, Tagari Publications, are used as the foundational texts for Permaculture Design.

NOTES

END

LEVEL 5.6.8**ELECTIVE**

TITLE	:	EFFECTIVE AND RESPONSIBLE CONTROL OF PROBLEM ANIMALS
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	8
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

Qualifying learners are capable of identifying predators eroding farm animals, distinguishing, selecting and demonstrating various control practices and measures and applying appropriate post control practices.

In addition they will be well positioned to extend their learning and practice into other areas of agriculture and especially the animal production field and the small stock industry.

Learners will gain specific knowledge and skills in the small stock industry and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF 2: Control Problem Animals.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Identify the natural behaviour of problem animals causing erosion.
 2. Distinguish between various control practices applied to problem animals causing erosion on farms.
 3. Selection of the relevant control practices for controlling various problem animals causing erosion on farms.
 4. Post control practices of problem animals.
-

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Identify the natural behaviour of problem animals causing erosion.

Range: Problem animals include but are not limited to lynx/caracul, jackal, hyena, leopards, otters, badgers, various birds and reptiles as relevant to the context of operation.

Assessment criteria:

- 1.1 Terrain and habitat of various problem animals are identified and explained.
- 1.2 Different spoor/tracks of various problem animals are described and identified.
- 1.3 Excretions/dung of various problem animals are recognised and identified.
- 1.4 Calling behaviour of various problem animals are identified.
- 1.5 Feeding patterns of various problem animals are observed and identified .

2. Distinguish between various control practices applied to problem animals causing erosion on farms.

Range: Control practices include but are not limited to snares, poison, trapping, culling, capture and other as relevant to the context of operation.

Assessment criteria:

- 2.1 Various control practices are explained and demonstrated.
- 2.2 Advantages and disadvantages of various control practices are described.
- 2.3 Application of control practices are described and demonstrated.
- 2.4 Legislation regulating the control of problem animals is stated and explained.

3. Selection of the relevant control practices for controlling various problem animals causing erosion on farms.

Range: Control practices include but are not limited to snares, poison, trapping, and calling, capture physical and other as relevant to the context of operation.

Assessment criteria:

- 3.1 Control practices and procedures are evaluated and selected according to the problem animal.
 - 3.2 The selected control practice and procedures are applied correctly under supervision.
 - 3.3 Control practices and procedures are implemented according to legislation and considering environmental issues.
4. Identify post control practices of problem animals.

Range: Control practices include but are not limited to snares, poison, trapping, and calling, capture physical and other as relevant to the context of operation.

Assessment criteria:

- 1.1 Problem animals retrieved after control practices are correctly identified.
- 1.2 Animals retrieved after implementing the relevant control practices, are evaluated by weighing and sexing.
- 1.3 Problem animals retrieved are evaluated for general health or abnormalities. (Pregnancy, number of foetuses, stomach content).
- 1.4 All animals retrieved are disposed of appropriately. (Skin, teeth, taxidermy and other).
- 1.5 Adapt control practices based on post control findings when appropriate.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Interpreting Information:** relates to specific outcomes 1 to 4.
2. **Self-development:** relates to specific outcomes 1 to 4.
3. **Use Science and Technology:** relates to specific outcomes 1 to 4.
4. **World as related system:** relates to specific outcomes 1 to 4.
5. **Problem Solving:** relates to specific outcomes 3 and 4.
6. **Self-management:** relates to specific outcomes 1 to 4.
7. **Communication:** relates to specific outcomes 2 to 4.

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Characteristics allowing for the identification of predators.
2. Various control practices.
3. Conditions and circumstances when selecting and implementing control practices.
4. Legislation involved with control of predators.
5. Post control practices.
6. Sensory cues used are sight, sound and smell.
7. Procedures according to rules and regulations are applied.
8. Relationships between the farming system and the environment are applied.
9. Literacy and numeracy.
10. Animal handling skills.

SUPPLEMENTARY INFORMATION

NOTES

END

LEVEL 5.6.9**ELECTIVE**

TITLE	:	MANAGE A HYDROPONIC PRODUCTION UNIT
SAQA LOGO	:	
UNIT STANDARD NO	:	
UNIT STANDARD LEVEL	:	5
CREDIT	:	10
FIELD	:	Agriculture and Nature Conservation
SUB-FIELD	:	Primary Agriculture
ISSUE DATE	:	
REVIEW DATE	:	

PURPOSE

A person achieving this unit standard will be able to manage a hydroponic production unit.

CONTEXT OF APPLICATION

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

LEARNING ASSUMED TO BE IN PLACE

It is assumed that a learner attempting this unit standard will demonstrate competence against the unit standards or equivalent:

NQF level 4: Produce crop in a hydroponic system.

SPECIFIC OUTCOMES

A person assessed as competent against this standard will be able to:

1. Demonstrate a thorough understanding of the hydroponic production environment.
2. Demonstrate a thorough understanding of crop's fertilization requirements.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

1. Demonstrate a thorough understanding of the hydroponic production environment.

Range: Production environment includes but is not limited to tunnels with various covering materials, shade netting, framework and environmental control systems.

Assessment criteria:

- 1.1 An understanding of the effect of different structures on the enclosed environment is demonstrated.
- 1.2 The ability to relate and manage structures and equipment to a range of crops for different climatic zones is demonstrated.
- 1.3 Appropriate growing media for a range of crops is explained.

2. Demonstrate a thorough understanding of crop's fertilization requirements.

Range: Fertilization includes but is not limited to the composition of the nutrient solution and the application frequency

Assessment criteria:

- 2.1 Ideal / appropriate nutrient solutions for specific crops are formulated.
- 2.2 The ability to evaluate leaf and water analysis results is demonstrated.
- 2.3 The ability to adjust nutrient solutions as required by crop growth stage, climatic conditions and leaf / water analysis is demonstrated.

ACCREDITATION PROCESS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The **specific outcomes** must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed **in relation to each other**. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified **critical cross-field outcomes** should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of **these values**.

- 1 Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- 2 Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- 3 Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

RANGE STATEMENT

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

CRITICAL CROSS-FIELD OUTCOMES

This unit standard relates to and promotes all of the critical cross-field outcomes of the NQF. Each specific outcome of the standard has been crafted to relate to one or more of the Critical Cross Field Outcomes. A cross-referencing has been listed below.

Providers of learning against this unit standard should take particular note of the Critical Cross Field Outcomes and design their achievement into all learning.

1. **Problem Solving:** relates to specific outcomes 1 and 2.
2. **Teamwork:** relates to specific outcomes 1 and 2.
3. **Self-management:** relates to specific outcomes 1 and 2.
4. **Interpreting Information:** relates to specific outcomes 1 and 2.
5. **Communication:** relates to specific outcomes 1 and 2.
6. **Inter-relatedness of Systems:** relates to specific outcomes 1 and 2.
7. **Self-development:** relates to specific outcomes 1 and 2.
8. **Science and Technology:** relates to specific outcomes 1 and 2.
9. **The world as a set of related systems:** relates to specific outcomes 1 and 2

ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

1. Hydroponic systems.
2. Plant nutrition.
3. Plant health (Plant pest and disease control).
4. Report writing.
5. Procedures involved in the treatment of prevention of plant irregularities (physiological and other).
6. Basic understanding of chemical concepts.

SUPPLEMENTARY INFORMATION

NOTES

END

APPENDIX E
LIST OF QUALIFICATIONS FROM NQF LEVELS 1 - 5

NQF LEVEL 1

Level 1.1	National Certificate in Animal Production
Level 1.2	National Certificate in Mixed Farming Systems
Level 1.3	National Certificate in Plant Production

NQF LEVEL 2

Level 2.1	National Certificate in Animal Production
Level 2.2	National Certificate in Mixed Farming Systems
Level 2.3	National Certificate in Plant Production

NQF LEVEL 3

Level 3.1	National Certificate in Animal Production
Level 3.2	National Certificate in Plant Production

NQF LEVEL 4

Level 4.1	National Certificate in Animal Production
Level 4.2	National Certificate in Plant Production

NQF LEVEL 5

Level 5.1	National Certificate in Animal Production
Level 5.2	National Certificate in Plant Production



Level 1.1

National Certificate In Animal Production, NQF Level 1

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 1

Credits: 120

Issue Date:

Review Date:

RATIONALE:

This qualification provides learners the opportunity to gain a qualification in Animal Production. The range of typical learners that will enter this qualification will vary and includes:

- New entrants in farming who wish to progress to the level of Junior Labourer within farming operations in Animal Husbandry;
- New entrants that wishes to enter the sector as farmers;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- Possible candidates for promotion identified by the community as leaders.
- Learners may come from both genders.

The learner will engage in supervision and operational activities relevant to Animal Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Animal Husbandry) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of animal production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will participate in the production quality agricultural products in Animal Husbandry whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow new entrants access to the Primary Agricultural Sector with specific reference to Animal Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to participate as part of a working team, performing the agricultural processes as applicable to animal production in a closely defined context and under close supervision.
- Competency will be gained in any of the specialized sub-fields of Animal Production as specified under **Areas Of Specialization** (i.e. Small stock, Large Stock, Dairy Production, Aqua Culture, etc.)
- The learner will be able to take responsible decisions within a limited range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Animal Production context.
- The Learner will be able to carry out repetitive procedures in a predictable environment and will be able to adhere to the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- Finally, this qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to ABET 3.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into five categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Agricultural Practices
- Animal Production
- Plant Production (This component has been included to ensure that Learners at this level is exposed to a small component of plant production)

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply various communication skills within the agricultural environment.	<ul style="list-style-type: none"> • Oral reports are made or data is entered on pre-printed forms or screens. • Instructions (including challenging, inappropriate or incorrect instructions) are received, evaluated, clarified and acted on. • Workplace language, e.g. special purpose gestures and terminology to describe conditions, events, problems and actions is used. • Meetings (describe conditions, state own opinions) are participated in. • Information is collected from a variety of sources by recognising / reading / and/or using sensory cues. • Information (collected from instruments, gauges, outputs, incidents, operations) is organised, summarised and responded to. • Conditions or states are determined by

	measuring (i.e. temperature, size, mass, colour).
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> • Numbers are used to count and measure. • A calculator is used to add, subtract, divide or multiply. • Simple fractions and decimals are read and written. • Simple ratios / percentages are applied as part of an instruction. • Proper use is made of number sequence, i.e. batch numbers. • Shapes are recognised. • Money is calculated in Rands and cents (related to pay, deductions, price, etc.) • Business related application are applied. • Underpinning natural science principles are applied.
Safely and accurately collect routine agricultural data by applying prescribed methods of data collection for agricultural purposes.	<ul style="list-style-type: none"> • Different elementary data collection methods are applied whilst agricultural data is collected. • Collected agricultural data is recorded correctly and accurately. • Data collection equipment is used and maintained. • Appropriate health, safety and hygiene standards are maintained throughout the data collection process.
Recognise the basic concepts of sustainable farming practices and be able to perform basic tasks in applying sustainable farming practices.	<ul style="list-style-type: none"> • Basic environmental patterns and processes such as soils, climate, water sources, topography, ecosystems pertaining to local conditions only are recognized. • An elementary comprehension of farming systems and design such as internal and external inputs; local, regional and export markets; diverse income sources; needs and aspirations of people is demonstrated. • Measurable indicators of sustainability such as social, economic and ecological are identified and described.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Keep record and report appropriately on inputs and resources in an agricultural environment.	<ul style="list-style-type: none"> • Agricultural inputs are received. • Storage information on inputs is sourced. • Stock levels are maintained. • Accurate records are kept. • Safety regulations are observed.
Describe the production process in an agricultural environment.	<ul style="list-style-type: none"> • The concept of production is explained. • The basic functions within the production process are explained. • The transformation/conversion process is explained.
Describe the importance of marketing within the agricultural production process.	<ul style="list-style-type: none"> • The marketing concept is explained. • The principles of supply and demand are explained. • The components and importance of marketing mix are explained.
Keep an accurate and current simple financial record keeping system in an agri-business environment.	<ul style="list-style-type: none"> • Capital investment is explained. • Flow of money is explained. • Flow of cost is explained. • The concept of profit and loss is explained. • The basic components of basic financial record keeping system are explained.
Apply the basic principles of human resources management in an agricultural environment.	<ul style="list-style-type: none"> • Explain HR management rules and procedures applicable to the immediate work environment. • Adhere to relevant LR legislation. • Identify the different types and purposes of contracts and agreements. • Describe and apply health and safety rules and practices applicable to the workplace.
Understand the basic principles of enterprise selection and production.	<ul style="list-style-type: none"> • The natural resources required for the selection of an agricultural enterprise are identified, recognized and described. • The infrastructural requirements for the selection of the relevant enterprise are determined and described. • All livestock or crops on the farm are identified. • The relation between the natural resources, infrastructure, the choice of stock or crop and production cycle is explained.

3. **Agricultural Practices**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply sound food safety principles by identifying risk factors in food contamination and applying preventative measures to ensure product safety.	<ul style="list-style-type: none"> • Good personal hygiene practices are applied. • Preventative measures against food contamination are applied. • Warning signs regarding product safety (where applicable) are adhered to.
Observe and maintain basic water quality by working with the technical systems that control quality factors in water.	<ul style="list-style-type: none"> • Water is sampled correctly and quality observed. • Water quality is recorded and reported on. • Minor maintenance tasks are performed on water quality technical systems.
Incorporate an understanding of the role of natural resource management in sustainable agricultural practices into existing farming activities by applying basic practices to conserve the environment, including natural resources.	<ul style="list-style-type: none"> • The impact of farming operations and practices on the environment is explained. • Environmentally friendly methods of disposal and/or re-use of farm and domestically generated waste and pollutants are applied. • Biodiversity is maintained and increased. • Invasive alien plant species and noxious weeds are cleared. • On farm fire breaks and/or fire guards are established.
Carry out basic physical farm layout tasks including construction of rainwater harvesting and soil conservation structures.	<ul style="list-style-type: none"> • Veld, planted pasture and arable land are recognized. • Soil physical characteristics are related to land capability. • A swale (level contour bund), using a simple water level is constructed. • Swales and soil erosion prevention structures are maintained.
Operate, care for and store basic tools and equipment in a safe and responsible manner.	<ul style="list-style-type: none"> • Tools and equipment that had been selected from a range of tools, are appropriate to the agricultural task. • Problems related to the use of tools and equipment are recognized and appropriate action is taken. • Routine maintenance tasks are performed in a safe manner. • Agricultural equipment is cleaned and stored correctly.

4. **Animal Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Visually evaluate animals externally with respect to their basic anatomical characteristics and morphological systems.	<ul style="list-style-type: none"> • The class, species and type of animal is identified and named. • The components and the externally visible divisions or parts of an animal are named. • Gross abnormalities therein within the external parts of the animal are identified. • The animal's life cycle is identified and described.
Supply feeding by following the correct on-farm animal feeding practices.	<ul style="list-style-type: none"> • The quality of animal feed is maintained and reported on. • Feed levels are observed and controlled. • Appropriate feed type and quantity is selected. • Correct feeding practices are applied. • Abnormal feeding behaviour is identified and reported on.
Observe and report on breeding behaviour of farm animals	<ul style="list-style-type: none"> • Normal mating behaviour is recognized. • Abnormal mating behaviour in breeding animals are observed and reported. • Successful mating amongst breeding animals is identified and reported on. • Post breeding animal behaviour is observed.
Demonstrate an understanding of and identify the readiness of animal products for harvesting	<ul style="list-style-type: none"> • The origin and purpose of harvesting and use of animal products is explained. • The indicators to determine the readiness for the harvesting of animal products are described. • The potential of animal products that can be harvested is described. • Correct techniques and procedures are applied.
Observe the health status of the animals and handle animals correctly.	<ul style="list-style-type: none"> • Behaviour and physical attributes are observed, recorded and reported. • Abnormalities in animal behaviour are observed and reported. • Animals are correctly, safely and successfully moved to and into a holding facility. • Animals are correctly and safely restrained in a restraint facility.

NOTE: Assessment should be specific to the area of operation (i.e. Either large livestock, small livestock, pigs, poultry, etc.).

5. Plant Production

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Produce crop whilst demonstrating an understanding of the physical and biological environment and its relationship to sustainable production.	<ul style="list-style-type: none"> • Soil as a factor in crop production is explained. • Climatic factors influencing crop production and their practical implications are identified and described. • The importance of water as a factor in crop production • The influence of topography on crop production is identified, described and explained. • Biological organisms as a factor influencing crop production is identified, described and explained. • The effects of crop production practices on the sustainability of the environment are observed and assessed.

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Certificate I in Agriculture in an animal production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit

standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is comparable to a NZNQF National Certificate in Agriculture (Level 1) in an animal production context. It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or

system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in animal production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as abalone, fish, ostriches, etc.) and/or system such as permaculture, organic production, etc.
- Technical competence in animal production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Animal Husbandry include but are not limited to:

- Small stock production,
- Large stock production,
- Dairy production,
- Pig production,
- Poultry production,
- Game,
- Aqua / mari culture,
- Commercial insects
- Animal fibres harvesting,
- Bee keeping,
- Natural resources harvesting
- Organic production,
- Perma-culture production,
- Eco/Agri Tourism,
- Agro Chemicals,
- Horse Breeding,
- Etc.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.

- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Plant Production, NQF 1;
- National Certificate in Mixed Farming Systems, NQF 1.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 2, namely:

- National Certificate in Animal Production, NQF 2.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers. The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Animal Production, NQF Level 1

FUNDAMENTAL

A minimum of 42 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
12462	Engage in a range of speaking and listening interaction for a variety of purposes	1	6
12471	Explore and use a variety of strategies to learn	1	5
12469	Read and respond to a range of texts	1	6
12470	Write for a variety of different purposes	1	6
	total		23

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
7451	Collect, analyse, use and communicate numerical data	1	2
14084	Demonstrate an understanding of and use the numbering system	1	1
7452	Describe, represent and interpret mathematical models in different contexts	1	6
7450	Work with measurement in a variety of contexts	1	2
7447	Working with numbers in various contexts	1	6
	Total		17

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Collect Agricultural Data	1	2
New	Demonstrate an Understanding of the Basic Concepts of Sustainable Farming Systems	1	4

CORE

59 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Handle inputs and stock in agribusiness	1	2
New	Define production and understand the basic activities of production conversion in the agribusiness environment.	1	2
New	Demonstrate an understanding of the importance of marketing.	1	2
New	Identify the need for capital and understand the need for the recording of the income and different costs in an agribusiness.	1	2
New	Apply basic human resources management principles and practices applicable in an agricultural environment	1	2
New	Apply basic agricultural enterprise selection principles.	1	2

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Apply basic food safety practices.	1	1
New	Maintain basic water quality	1	1
New	Understand how sustainable farming systems conserve natural resources.	1	4
New	Apply elementary farm layout and infrastructure.	1	2
New	Select use and care for hand tools and basic equipment and infrastructure.	1	4

ANIMAL PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Evaluate basic external animal anatomy and morphology.	1	5
New	Apply standard animal feeding procedures.	1	6
New	Recognise basic breeding behaviour of farm animals.	1	6
New	Harvest animal products	1	5
New	Observe and handle animals	1	5
New	Recognize defensive behaviour in animals	1	4
13355	Demonstrate an understanding of the physical and biological environment and its relationship to sustainable crop production.	1	4

ELECTIVE

A minimum of 15 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELDS OF SPECIALISATION: SMALL/LARGE STOCK PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New SETASA	Administer livestock processing treatments.	2	8
New SETASA	Mix and deliver feedlot feed to bunker.	2	4

FIELDS OF SPECIALISATION: DAIRY PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Apply basic dairy production practices	1	6

FIELDS OF SPECIALISATION: PIG PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Apply basic pig husbandry practices	1	5

FIELDS OF SPECIALISATION: ANIMAL FIBRE HARVESTING			
NLRD	TITLE	LEVEL	CREDIT
New	Sort and handle animal fibre	1	5

FIELDS OF SPECIALISATION: ORGANIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Understand organic market requirements.	1	3

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Demonstrate an understanding of agri/eco-tourism as a system at micro level.	1	5

FIELDS OF SPECIALISATION: COMMERCIAL INSECT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Understand the basic practices of beekeeping and the benefit thereof for agriculture	1	1

National Certificate In Animal Production, NQF Level 1

Unit Standards NQF 1

Title: COLLECT AGRICULTURAL DATA

Specific Outcome 1: Demonstrate knowledge of different elementary methods of data collection.

Specific Outcome 2: Collect and report on collected agricultural data by using prescribed collection methods.

Specific Outcome 3: Apply methods of recording collected data using various types of technology.

Specific Outcome 4: Use and maintain data collection equipment correctly.

Specific Outcome 5: Apply health and safety measures applicable to the collection method and equipment.

Title: DEMONSTRATE AN UNDERSTANDING OF THE BASIC CONCEPTS OF SUSTAINABLE FARMING SYSTEMS

Specific Outcome 1: Recognise basic environmental patterns and processes.

Specific Outcome 2: Demonstrate an elementary comprehension of farming systems and design.

Specific Outcome 3: Identify and describe measurable indicators of sustainability.

AGRICULTURAL BUSINESS

Title: HANDLE INPUTS AND STOCK IN AGRI-BUSINESS

Specific Outcome 1: Prepare to receive agricultural inputs into an appropriate store at the appropriate time.

Specific Outcome 2: Source information about inputs with respect to types, quality and quantity.

Specific Outcome 3: Keep accurate records and handle stock.

Specific Outcome 4: Demonstrate understanding of input costs and value of inventory.

Specific Outcome 5: Identify legislation regarding different inputs.

Specific Outcome 6: Observe safety regulations.

Specific Outcome 7: Schedule supply of inputs with regards to consumption.

Title: **DEFINE PRODUCTION AND UNDERSTAND THE BASIC ACTIVITIES OF PRODUCTION / CONVERSION IN THE AGRI-BUSINESS ENVIRONMENT**

Specific Outcome 1: Describe the rudiments and components of the agricultural production environment.

Specific Outcome 2: Identify the components and purposes of basic production systems.

Specific Outcome 3: Identify basic production factors used in the agricultural production process.

Specific Outcome 4: Define the production and conversion process in terms of an agricultural business environment.

Title: **DEMONSTRATE AN UNDERSTANDING OF THE IMPORTANCE OF MARKETING**

Specific Outcome 1: Understand what is meant by “marketing concept”.

Specific Outcome 2: Understand the differences between and the value of demand and production driven farming practices.

Specific Outcome 3: Identify the principles of demand and supply and therefore basic price formulation.

Specific Outcome 4: Demonstrate the principles of marketing as by the needs of customers/clients.

Title: IDENTIFY THE NEED FOR CAPITAL AND UNDERSTAND THE NEED FOR THE RECORDING OF THE INCOME AND DIFFERENT COSTS IN AN AGRI-BUSINESS

Specific Outcome 1: Describe the need for investment capital, where it can be acquired and how it can be categorised within an agri-business.

Specific Outcome 2: Explain the flow of money in an agric-business.

Specific Outcome 3: Describe the flow of costs in an agri-business.

Specific Outcome 4: Identify the basic components of financial information and record keeping system and the basic administration procedures regarding source documents.

Specific Outcome 5: Provide inputs to a simple record keeping system for an agri-business, and be able to extract managerial information from it.

Title: APPLY BASIC HUMAN RESOURCES MANAGEMENT PRINCIPLES AND PRACTICES APPLICABLE IN AN AGRICULTURAL ENVIRONMENT

Specific Outcome 1: Name and define human resource management rules and procedures applicable to the immediate working environment.

Specific Outcome 2: Name and identify labour legislation applicable to the immediate working environment.

Specific Outcome 3: Identify and describe the different types of contracts and agreements applicable to the workplace.

Specific Outcome 4: Describe the different human resource benefits applicable at the workplace.

Specific Outcome 5: Know and describe the health and safety rules and practices applicable at the workplace.

Specific Outcome 6: Demonstrate basic knowledge on the filing of applicable human resource information.

Title: APPLY BASIC AGRICULTURAL ENTERPRISE SELECTION PRINCIPLES

Specific Outcome 1: Name natural resources required for the selection of the relevant enterprise.

Specific Outcome 2: Describe infrastructure requirements for the selection of the relevant enterprise.

Specific Outcome 3: Identify appropriate crops and/or animals for the relevant enterprise.

Specific Outcome 4: Recognise the production cycle within relevant enterprise.

Specific Outcome 5: Identify harvest practice within the relevant enterprise.

Specific Outcome 6: Describe post harvest practice within relevant enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: APPLY BASIC FOOD SAFETY PRACTICES

Specific Outcome 1: Apply good personal hygiene practices.

Specific Outcome 2: Demonstrate an understanding of risk factors in food contamination.

Specific Outcome 3: Apply preventative measures against food contamination.

Specific Outcome 4: Understand and adhere to warning signs regarding product safety (where applicable).

Title: MAINTAIN BASIC WATER QUALITY

Specific Outcome 1: Demonstrate a basic ability to sample and observe water quality.

Specific Outcome 2: Demonstrate an ability to perform maintenance tasks on certain operational technical systems.

Specific Outcome 3: Demonstrate the ability to handle systems to maintain water quality.

Specific Outcome 4: Record basic observations and applications regarding water quality.

**Title: UNDERSTAND HOW SUSTAINABLE FARMING SYSTEMS
CONSERVE NATURAL RESOURCES**

Specific Outcome 1: Demonstrate an understanding of the impact of farming operations and practices on the environment.

Specific Outcome 2: Identify farm and domestically generated waste and pollutants and apply environmentally friendly methods of disposal and/or re-use.

Specific Outcome 3: Apply practices to maintain and increase biodiversity.

Specific Outcome 4: Understand how to control invasive alien plant species and noxious weeds.

Specific Outcome 5: Prevent the spread of veld fires using on farm firebreaks and/or fireguards.

Specific Outcome 6: Apply basic control and preventative measures to enhance the soil's capacity to hold water and prevent water run-off.

**Title: APPLY ELEMENTARY FARM LAYOUT AND
INFRASTRUCTURE**

Specific Outcome 1: Recognise veld types, planted pasture and arable land, and understand the need for the conservation of the related natural resources in the layout of the farm.

Specific Outcome 2: Recognise the animal life, the impact of farm animals and humans and understand the need for the conservation of related natural resources in the layout of the farm.

Specific Outcome 3: Recognise the need to plan infrastructure to limit the impact on natural resources and ensure sustainable resource use.

Specific Outcome 4: Construct prevention structures and elementary infrastructure as planned for farm layout.

Specific Outcome 5: Maintain prevention structures and report major problems to a supervisor.

Title: SELECT, USE AND CARE FOR HAND TOOLS AND BASIC EQUIPMENT AND INFRASTRUCTURE

Specific Outcome 1: Select and use appropriate equipment and implements for a specific agricultural task.

Specific Outcome 2: Recognise and act on problems related to the use of hand tools and basic equipment in an agricultural environment.

Specific Outcome 3: Perform routine maintenance tasks to hand tools and basic equipment that are not functioning properly.

Specific Outcome 4: Store hand tools and basic equipment correctly and safely.

Specific Outcome 5: Identify and apply the correct safety measures when using hand tools and basic agricultural equipment.

ANIMAL PRODUCTION

Title: EVALUATE BASIC EXTERNAL ANIMAL ANATOMY AND MORPHOLOGY

Specific Outcome 1: Identify and name the class, species and type of animal according to criteria and under supervision.

Specific Outcome 2: Identify and name the components and the externally visible divisions or parts of an animal and identify gross abnormalities therein.

Specific Outcome 3: Understand the basic concepts of further anatomical systems within animals according to criteria.

Specific Outcome 4: Identify and describe the morphological attributes of animals by which they are classified.

Specific Outcome 5: Identify and describe the animal's life cycle.

Title: APPLY STANDARD ANIMAL FEEDING PROCEDURES

Specific Outcome 1: Follow correct on-farm procedures to maintain feed quality.

Specific Outcome 2: Apply feed level control and record keeping.

Specific Outcome 3: Select appropriate feed type and quantity as per instruction.

Specific Outcome 4: Observe and report on feed quality before allowing animals access to feed.

Specific Outcome 5: Apply correct feeding under supervision.

Specific Outcome 6: Identify and report abnormal feeding behaviour in animals.

Title: RECOGNISE BASIC BREEDING BEHAVIOUR OF FARM ANIMALS

Specific Outcome 1: Recognise normal mating behaviour in breeding animals.

Specific Outcome 2: Observe abnormal mating behaviour in breeding animals.

Specific Outcome 3: Identify successful mating amongst breeding animals.

Specific Outcome 4: Observe breeding animals behaviour post breeding.

Title: HARVEST ANIMAL PRODUCTS

Specific Outcome 1: Understand and describe the origin and purpose of animal products for harvesting and use.

Specific Outcome 2: Understand and describe the status of the animal products to be harvested.

Specific Outcome 3: Understand and describe the names, identification and potential of various animal products to be harvested.

Specific Outcome 4: Describe and demonstrate correct procedures for the harvesting of animal products.

Title: OBSERVE AND HANDLE ANIMALS

Specific Outcome 1: Observe, record and report behaviour and physical attributes.

Specific Outcome 2: Evaluate animal behaviour and attributes regarding abnormalities.

Specific Outcome 3: Collect and move animals to a holding facility.

Specific Outcome 4: Restrain animals in a holding facility.

Title: RECOGNIZE DEFENSIVE BEHAVIOUR IN ANIMALS

Specific Outcome 1: Understand and describe behaviour of specific animals.

Specific Outcome 2: Identify symptoms of defensive behaviour.

Specific Outcome 3: Describe management protocol for relevant animals to minimise defensive behaviour.

Specific Outcome 4: List relevant equipment required managing relevant animals.

ELECTIVE

Title: APPLY BASIC DIARY PRODUCTION PRACTICES

Specific Outcome 1: Demonstrate the ability to bring animals to a milking station, restrain them and allow them out again.

Specific Outcome 2: Demonstrate the ability to clean the working area in the parlour.

Specific Outcome 3: Demonstrate the ability to ensure the free movement of wastewater away from the working area.

Specific Outcome 4: Demonstrate the ability to clean dairy utensils effectively.

Specific Outcome 5: Demonstrate basic routines for fly control.

Title: APPLY BASIC PIG HUSBANDRY PRACTICES

Specific Outcome 1: Demonstrate the procedures to be followed in the preparation of the farrowing house.

Specific Outcome 2: Demonstrate the procedures to be followed in the preparation of the sows for the farrowing house.

Specific Outcome 3: Apply appropriate feeding practices.

Specific Outcome 4: Demonstrate the ability to clean and disinfect pig housing.

Specific Outcome 5: Ensure the observance of bio-security in the piggery.

Title: SORT AND HANDLE ANIMAL FIBRE

Specific Outcome 1: Demonstrate the picking up and casting of a fleece.

Specific Outcome 2: Show the ability to skirt a fleece to remove inferior wool.

Specific Outcome 3: Identify the different components of a fleece and class the fleece accordingly.

Specific Outcome 4: Identify and class skirtings, belly pieces and lox.

Specific Outcome 5: Demonstrate the pressing, closing and marking of bales.

Title: UNDERSTAND THE BASIC PRACTICES OF BEEKEEPING AND THE BENEFIT THEREOF FOR AGRICULTURE

Specific Outcome 1: Understand and describe the origin of nectar, pollen and propolis in plants.

Specific Outcome 2: Understand and describe the effects of environmental factors on the production of nutrients and products in a plant.

Specific Outcome 3: Understand and describe the names and identification of the most important known nutritional resource plants for nectar, pollen and propolis production.

Specific Outcome 4: Understand and describe the potential of the most important known bee-plants.

Title: UNDERSTAND ORGANIC MARKET REQUIREMENTS

Specific Outcome 1: Be familiar with basic requirements of the local and organic markets.

Specific Outcome 2: Be aware of local market outlets.

Title: DEMONSTRATE AN UNDERSTANDING OF AGRICULTURE AS A SYSTEM AT MICRO LEVEL

Specific Outcome 1: Have a basic knowledge of the tourist industry.

Specific Outcome 2: Identify the Agri/Ecotourist on the site (micro level).

Specific Outcome 3: Recognize the needs of the tourist at this level.

Specific Outcome 4: Identify and locate the tourism infrastructure, attractions and activities on the agri/eco site.

Specific Outcome 5: State operational, organizational and tourism practices on the Agri/Ecotourism site.

Title: IDENTIFY AND EXPLAIN PERMACULTURE PRINCIPLES

Specific Outcome 1: Identify site elements and resources and list their inputs and outputs.

Specific Outcome 2: Perform routine tasks related to the use of biological and other available resources.

Specific Outcome 3: Recognise and describe ecological processes and cycles.

Specific Outcome 4: Identify sustainable living practices.



LEVEL 1.2

National Certificate In Mixed Farming Systems, NQF Level 1

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 1

Credits: 120

Issue Date:

Review Date:

RATIONALE:

This qualification provides learners the opportunity to gain a qualification in Mixed Farming Systems (Plant- and Animal Production). The range of typical learners that will enter this qualification will vary and includes:

- New entrants in farming who wish to progress to the level of Junior Labourer within farming operations in Mixed Farming Systems;
- New entrants that wishes to enter the sector as farmers;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- Possible candidates for promotion identified by the community as leaders.
- Learners may come from both genders.

The learner will engage in supervision and operational activities relevant to Plant Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of plant- and animal production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in mixed farming systems whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow new entrants access to the Primary Agricultural Sector with specific reference to Mixed Farming Systems. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to participate as part of a working team, performing the agricultural processes as applicable to Plant and Animal Production as required for a mixed farming system in a closely defined context and under close supervision.
- Competency will be gained in a combination of the sub-fields of Plant and Animal Production as specified under **Areas Of Specialization** (i.e. Small Stock, Large Stock as well as Vegetables, Fruit Production, Hydroponics, etc.)
- The learner will be able to take responsible decisions within a limited range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in a Mixed Farming context.
- The Learner will be able to carry out repetitive procedures in a predictable environment and will be able to adhere to the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Animal Production, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the

overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- Finally, this qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to ABET 3.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into five categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Plant Production; and
- Animal Production

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply various communication skills within the agricultural environment.	<ul style="list-style-type: none"> • Oral reports are made or data is entered on pre-printed forms or screens. • Instructions (including challenging, inappropriate or incorrect instructions) are received, evaluated, clarified and acted on. • Workplace language, e.g. special purpose gestures and terminology to describe conditions, events, problems and actions is used. • Meetings (describe conditions, state own opinions) are participated in. • Information is collected from a variety of sources by recognising / reading / and/or using sensory cues. • Information (collected from instruments, gauges, outputs, incidents, operations) is organised, summarised and responded to. • Conditions or states are determined by measuring (i.e. temperature, size, mass,

<p>Apply mathematical calculations within the agricultural environment.</p>	<p>colour).</p> <ul style="list-style-type: none"> • Numbers are used to count and measure. • A calculator is used to add, subtract, divide or multiply. • Simple fractions and decimals are read and written. • Simple ratios / percentages are applied as part of an instruction. • Proper use is made of number sequence, i.e. batch numbers. • Shapes are recognised. • Money is calculated in Rands and cents (related to pay, deductions, price, etc.) • Business related application are applied. • Underpinning natural science principles are applied.
<p>Safely and accurately collect routine agricultural data by applying prescribed methods of data collection for agricultural purposes.</p>	<ul style="list-style-type: none"> • Different elementary data collection methods are applied whilst agricultural data is collected. • Collected agricultural data is recorded correctly and accurately. • Data collection equipment is used and maintained. • Appropriate health, safety and hygiene standards are maintained throughout the data collection process.
<p>Recognise the basic concepts of sustainable farming practices and be able to perform basic tasks in applying sustainable farming practices</p>	<ul style="list-style-type: none"> • Basic environmental patterns and processes such as soils, climate, water sources, topography, ecosystems pertaining to local conditions only are recognized. • An elementary comprehension of farming systems and design such as internal and external inputs; local, regional and export markets; diverse income sources; needs and aspirations of people is demonstrated. • Measurable indicators of sustainability such as social, economic and ecological are identified and described.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Keep record and report appropriately on inputs and resources in an agricultural environment.	<ul style="list-style-type: none"> • Agricultural inputs are received. • Storage information on inputs is sourced. • Stock levels are maintained. • Accurate records are kept. • Safety regulations are observed.
Describe the production process in an agricultural environment.	<ul style="list-style-type: none"> • The concept of production is explained. • The basic functions within the production process are explained. • The transformation/conversion process is explained.
Describe the importance of marketing within the agricultural production process.	<ul style="list-style-type: none"> • The marketing concept is explained. • The principles of supply and demand are explained. • The components and importance of marketing mix are explained.
Keep an accurate and current simple financial record keeping system in an agri-business environment.	<ul style="list-style-type: none"> • Capital investment is explained. • Flow of money is explained. • Flow of cost is explained. • The concept of profit and loss is explained. • The basic components of basic financial record keeping system are explained.
Apply the basic principles of human resources management in an agricultural environment.	<ul style="list-style-type: none"> • Explain HR management rules and procedures applicable to the immediate work environment. • Adhere to relevant LR legislation. • Identify the different types and purposes of contracts and agreements. • Describe and apply health and safety rules and practices applicable to the workplace.
Understand the basic principles of enterprise selection and production.	<ul style="list-style-type: none"> • The natural resources required for the selection of an agricultural enterprise are identified, recognized and described. • The infrastructural requirements for the selection of the relevant enterprise are determined and described. • All livestock or crops on the farm are identified. • The relation between the natural resources, infrastructure, the choice of stock or crop and production cycle is explained.

3. **Good Agricultural Practices**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply sound food safety principles by identifying risk factors in food contamination and applying preventative measures to ensure product safety.	<ul style="list-style-type: none"> • Good personal hygiene practices are applied. • Preventative measures against food contamination are applied. • Warning signs regarding product safety (where applicable) are adhered to.
Observe and maintain basic water quality by working with the technical systems that control quality factors in water.	<ul style="list-style-type: none"> • Water is sampled correctly and quality observed. • Water quality is recorded and reported on. • Minor maintenance tasks are performed on water quality technical systems.
Incorporate an understanding of the role of natural resource management in sustainable agricultural practices into existing farming activities by applying basic practices to conserve the environment, including natural resources,	<ul style="list-style-type: none"> • The impact of farming operations and practices on the environment is explained. • Environmentally friendly methods of disposal and/or re-use of farm and domestically generated waste and pollutants are applied. • Biodiversity is maintained and increased. • Invasive alien plant species and noxious weeds are cleared. • On farm fire breaks and/or fire guards are established.
Carry out basic physical farm layout tasks including construction of rainwater harvesting and soil conservation structures in a small farm or garden environment	<ul style="list-style-type: none"> • Veld, planted pasture and arable land are recognized. • Soil physical characteristics are related to land capability. • A swale (level contour bund), using a simple water level is constructed. • Swales and soil erosion prevention structures are maintained.
Operate, care for and store basic tools and equipment in a safe and responsible manner.	<ul style="list-style-type: none"> • Tools and equipment that had been selected from a range of tools, are appropriate to the agricultural task. • Problems related to the use of tools and equipment are recognized and appropriate action is taken. • Routine maintenance tasks are performed in a safe manner. • Agricultural equipment is cleaned and stored correctly.

4. **Plant Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply soil nutrient preparations in a safe, effective and responsible manner.	<ul style="list-style-type: none"> • Identify and apply nutrients correctly by using the appropriate application techniques. • Basic symptoms of nutritional deficiencies are identified. • Soil properties are explained.
Harvest agricultural crops by using basic harvesting tools.	<ul style="list-style-type: none"> • Tools, appropriate to the harvesting method and crop, are selected and the correct usage is demonstrated. • Crop is sampled for maturity indexing. • Harvesting procedures are applied. • Health, hygiene and safety measures are adhered to and applied.
Plant a range of crops according to correct placing, spacing and depth of the plant material.	<ul style="list-style-type: none"> • Soil or growth medium is prepared and irrigated according to the plant/crop requirements. • Planting material is handled correctly for the successful establishment. • The effects of the environment on the specific crop are explained. • Correct placing, spacing and depth of the plant material is determined.
Identify insects and explain the damage it can cause to crops.	<ul style="list-style-type: none"> • Insects and other classes of animals are distinguished. • The basic anatomy of an insect is described. • Crop damaging appendages are located and the damages to plants are explained. • The life cycle of an insect is explained. • Distinguish between harmful and useful insects and pests.
Manipulate plants using pre-determined methods and techniques.	<ul style="list-style-type: none"> • Frameworks are developed according to the requirements of the crop. • Pruning, training and other manipulation techniques are applied.

NOTE: Assessment should be specific to the area of operation (i.e. Either horticulture or agronomy including but not limited to arable and/or dry land production).

5. Animal Production

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Supply feeding by following the correct on-farm animal feeding practices.	<ul style="list-style-type: none"> • The quality of animal feed is maintained and reported on. • Feed levels are observed and controlled. • Appropriate feed type and quantity is selected. • Correct feeding practices are applied. • Abnormal feeding behaviour is identified and reported on.
Demonstrate an understanding of and identify the readiness of animal products for harvesting	<ul style="list-style-type: none"> • The origin and purpose of harvesting and use of animal products is explained. • The indicators to determine the readiness for the harvesting of animal products are described. • The potential of animal products that can be harvested is described. • Correct techniques and procedures are applied.
Observe the health status of the animals and will handle animals correctly.	<ul style="list-style-type: none"> • Behaviour and physical attributes are observed, recorded and reported. • Abnormalities in animal behaviour are observed and reported. • Animals are correctly, safely and successfully moved to and into a holding facility. • Animals are correctly and safely restrained in a restraint facility.

NOTE: Assessment should be specific to the area of operation (i.e. Either large livestock, small livestock, pigs, poultry, etc.).

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

It should also be noted that this qualification is unique in the sense that it provides for the development of learners in both Plant- and Animal Production.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: Although no specific qualification of this nature exists within the AQF, this qualification is partly comparable to the AQF Certificates I in Agriculture in both a plant- and animal production context.

New Zealand NQF: Although no specific qualification of this nature exists within the NZQF, this qualification is partly comparable to the NZNQF National Certificates in Agriculture (Level 1) in both a plant- and animal production context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and

interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in mixed farming systems practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as abalone, fish, ostriches, agronomic crop, horticultural crop, vegetable production, etc.) and/or system such as permaculture, organic production, etc.
- Technical competence in mixed farming production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation in Animal Husbandry include but are not limited to:

- Small stock production,
- Large stock production,
- Dairy production,
- Pig production,
- Poultry production,
- Game,
- Aqua / mari culture,
- Commercial insects
- Animal fibres harvesting,
- Bee keeping,
- Natural resources harvesting
- Organic production,
- Perma-culture production,
- Eco/Agri Tourism,
- Agro Chemicals,
- Horse Breeding,
- Etc.

Areas of specialisation in Plant Production include but are not limited to:

- Organic production,
- Hydroponic production,
- Perma-culture production,
- Agronomy,
- Horticulture,
- Natural resources harvesting.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, organic systems, perma culture systems, vegetable production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Animal Production, NQF 1;
- National Certificate in Plant Production, NQF 1.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 2, namely:

- National Certificate in Mixed Farming Systems, NQF 2.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers.

The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Animal Production, NQF Level 1

FUNDAMENTAL

A minimum of 46 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
12462	Engage in a range of speaking and listening interaction for a variety of purposes	1	6
12471	Explore and use a variety of strategies to learn	1	5
12469	Read and respond to a range of texts	1	6
12470	Write for a variety of different purposes	1	6
	total		23

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
7451	Collect, analyse, use and communicate numerical data	1	2
14084	Demonstrate an understanding of and use the numbering system	1	1

7452	Describe, represent and interpret mathematical models in different contexts	1	6
7450	Work with measurement in a variety of contexts	1	2
7447	Working with numbers in various contexts	1	6
	Total		17

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Collect Agricultural Data	1	2
New	Demonstrate an Understanding of the Basic Concepts of Sustainable Farming Systems	1	4

CORE

64 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Handle inputs and stock in agribusiness	1	2
New	Define production and understand the basic activities of production conversion in the agribusiness environment.	1	2
New	Demonstrate an understanding of the importance of marketing.	1	2
New	Identify the need for capital and understand the need for the recording of the income and different costs in an agribusiness.	1	2
New	Apply basic human resources management principles and practices applicable in an agricultural environment	1	2
New	Apply basic agricultural enterprise selection principles.	1	2

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Apply basic food safety practices.	1	1
New	Maintain basic water quality	1	1
New	Understand how sustainable farming systems	1	4

	conserve natural resources.		
New	Apply elementary farm layout and infrastructure.	1	2
New	Select use and care for hand tools and basic equipment and infrastructure.	1	4

PLANT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Fertilise soil and attend to basic plant nutrition.	1	5
New	Manipulate plants.	1	5
New	Recognise pests and diseases and weeds on crops.	1	5
New	Harvest agricultural crops.	1	5
New	Plant crop under supervision.	1	4

ANIMAL PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Apply standard animal feeding procedures.	1	6
New	Harvest animal products	1	5
New	Observe and handle animals	1	5

ELECTIVE

A minimum of 10 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELD OF SPECIALISATION: SUSTAINABLE HARVESTING OF NATURAL RESOURCES			
NLRD	TITLE	LEVEL	CREDIT
New	Understand organic market requirements	1	3

FIELD OF SPECIALISATION: PERMA-CULTURE PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Identify and explain permaculture principles	1	8

FIELD OF SPECIALISATION: HYDROPONIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Perform basic routine operations in a defined hydroponic context.	1	5

FIELDS OF SPECIALISATION: SMALL/LARGE STOCK PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New SETASA	Administer livestock processing treatments.	2	8
New SETASA	Mix and deliver feedlot feed to bunker.	2	4

FIELDS OF SPECIALISATION: DAIRY PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Apply basic dairy production practices	1	6

FIELDS OF SPECIALISATION: PIG PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Apply basic pig husbandry practices	1	5

FIELDS OF SPECIALISATION: ANIMAL FIBRE HARVESTING			
NLRD	TITLE	LEVEL	CREDIT
New	Sort and handle animal fibre	1	5

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Demonstrate an understanding of agri/eco-tourism as a system at micro level.	1	5

FIELDS OF SPECIALISATION: COMMERCIAL INSECT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Understand the basic practices of beekeeping and the benefit thereof for agriculture.	1	1

National Certificate In Plant Production, NQF Level 1

Unit Standards NQF 1

Title: COLLECT AGRICULTURAL DATA

Specific Outcome 1: Demonstrate knowledge of different elementary methods of data collection.

Specific Outcome 2: Collect and report on collected agricultural data by using prescribed collection methods.

Specific Outcome 3: Apply methods of recording collected data using various types of technology.

Specific Outcome 4: Use and maintain data collection equipment correctly.

Specific Outcome 5: Apply health and safety measures applicable to the collection method and equipment.

Title: DEMONSTRATE AN UNDERSTANDING OF THE BASIC CONCEPTS OF SUSTAINABLE FARMING SYSTEMS

Specific Outcome 1: Recognise basic environmental patterns and processes.

Specific Outcome 2: Demonstrate an elementary comprehension of farming systems and design.

Specific Outcome 3: Identify and describe measurable indicators of sustainability.

AGRICULTURAL BUSINESS

Title: HANDLE INPUTS AND STOCK IN AGRI-BUSINESS

Specific Outcome 1: Prepare to receive agricultural inputs into an appropriate store at the appropriate time.

Specific Outcome 2: Source information about inputs with respect to types, quality and quantity.

Specific Outcome 3: Keep accurate records and handle stock.

Specific Outcome 4: Demonstrate understanding of input costs and value of inventory.

Specific Outcome 5: Identify legislation regarding different inputs.

Specific Outcome 6: Observe safety regulations.

Specific Outcome 7: Schedule supply of inputs with regards to consumption.

Title: **DEFINE PRODUCTION AND UNDERSTAND THE BASIC ACTIVITIES OF PRODUCTION / CONVERSION IN THE AGRI-BUSINESS ENVIRONMENT**

Specific Outcome 1: Describe the rudiments and components of the agricultural production environment.

Specific Outcome 2: Identify the components and purposes of basic production systems.

Specific Outcome 3: Identify basic production factors used in the agricultural production process.

Specific Outcome 4: Define the production and conversion process in terms of an agricultural business environment.

Title: **DEMONSTRATE AN UNDERSTANDING OF THE IMPORTANCE OF MARKETING**

Specific Outcome 1: Understand what is meant by “marketing concept”.

Specific Outcome 2: Understand the differences between and the value of demand and production driven farming practices.

Specific Outcome 3: Identify the principles of demand and supply and therefore basic price formulation.

Specific Outcome 4: Demonstrate the principles of marketing by the needs of customers/clients.

Title: IDENTIFY THE NEED FOR CAPITAL AND UNDERSTAND THE NEED FOR THE RECORDING OF THE INCOME AND DIFFERENT COSTS IN AN AGRI-BUSINESS

Specific Outcome 1: Describe the need for investment capital, where it can be acquired and how it can be categorised within an agri-business.

Specific Outcome 2: Explain the flow of money in an agric-business.

Specific Outcome 3: Describe the flow of costs in an agri-business.

Specific Outcome 4: Identify the basic components of financial information and record keeping system and the basic administration procedures regarding source documents.

Specific Outcome 5: Provide inputs to a simple record keeping system for an agri-business, and be able to extract managerial information from it.

Title: APPLY BASIC HUMAN RESOURCE MANAGEMENT PRINCIPLES AND PRACTICES APPLICABLE IN AN AGRICULTURAL ENVIRONMENT

Specific Outcome 1: Name and define human resource management rules and procedures applicable to the immediate working environment.

Specific Outcome 2: Name and identify labour legislation applicable to the immediate working environment.

Specific Outcome 3: Identify and describe the different types of contracts and agreements applicable to the workplace.

Specific Outcome 4: Describe the different human resource benefits applicable at the workplace.

Specific Outcome 5: Know and describe the health and safety rules and practices applicable at the workplace.

Specific Outcome 6: Demonstrate basic knowledge on the filing of applicable human resource information.

Title: APPLY BASIC AGRICULTURAL ENTERPRISE SELECTION PRINCIPLES

Specific Outcome 1: Name natural resources required for the selection of the relevant enterprise.

Specific Outcome 2: Describe infrastructure requirements for the selection of the relevant enterprise.

Specific Outcome 3: Identify appropriate crops and/or animals for the relevant enterprise.

Specific Outcome 4: Recognise the production cycle within relevant enterprise.

Specific Outcome 5: Identify harvest practice within the relevant enterprise.

Specific Outcome 6: Describe post harvest practice within relevant enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: APPLY BASIC FOOD SAFETY PRACTICES

Specific Outcome 1: Apply good personal hygiene practices.

Specific Outcome 2: Demonstrate an understanding of risk factors in food contamination.

Specific Outcome 3: Apply preventative measures against food contamination.

Specific Outcome 4: Understand and adhere to warning signs regarding product safety (where applicable).

Title: MAINTAIN BASIC WATER QUALITY

Specific Outcome 1: Demonstrate a basic ability to sample and observe water quality.

Specific Outcome 2: Demonstrate an ability to perform maintenance tasks on certain operational technical systems.

Specific Outcome 3: Demonstrate the ability to handle systems to maintain water quality.

Specific Outcome 4: Record basic observations and applications regarding water quality.

**Title: UNDERSTAND HOW SUSTAINABLE FARMING SYSTEMS
CONSERVE NATURAL RESOURCES**

Specific Outcome 1: Demonstrate an understanding of the impact of farming operations and practices on the environment.

Specific Outcome 2: Identify farm and domestically generated waste and pollutants and apply environmentally friendly methods of disposal and/or re-use.

Specific Outcome 3: Apply practices to maintain and increase biodiversity.

Specific Outcome 4: Understand how to control invasive alien plant species and noxious weeds.

Specific Outcome 5: Prevent the spread of veld fires using on farm firebreaks and/or fireguards.

Specific Outcome 6: Apply basic control and preventative measures to enhance the soil's capacity to hold water and prevent water run-off.

**Title: APPLY ELEMENTARY FARM LAYOUT AND
INFRASTRUCTURE**

Specific Outcome 1: Recognise veld types, planted pasture and arable land, and understand the need for the conservation of the related natural resources in the layout of the farm.

Specific Outcome 2: Recognise the animal life, the impact of farm animals and humans and understand the need for the conservation of related natural resources in the layout of the farm.

Specific Outcome 3: Recognise the need to plan infrastructure to limit the impact on natural resources and ensure sustainable resource use.

Specific Outcome 4: Construct prevention structures and elementary infrastructure as planned for farm layout.

Specific Outcome 5: Maintain prevention structures and report major problems to a supervisor.

Title: SELECT, USE AND CARE FOR HAND TOOLS AND BASIC EQUIPMENT AND INFRASTRUCTURE

Specific Outcome 1: Select and use appropriate equipment and implements for a specific agricultural task.

Specific Outcome 2: Recognise and act on problems related to the use of hand tools and basic equipment in an agricultural environment.

Specific Outcome 3: Perform routine maintenance tasks to hand tools and basic equipment that are not functioning properly.

Specific Outcome 4: Store hand tools and basic equipment correctly and safely.

Specific Outcome 5: Identify and apply the correct safety measures when using hand tools and basic agricultural equipment.

PLANT PRODUCTION

Title: FERTILISE SOIL AND ATTEND TO BASIC PLANT NUTRITION

Specific Outcome 1: Apply appropriate nutrient substances to soils or crops under close supervision.

Specific Outcome 2: Understand how to make compost and when to use it.

Specific Outcome 3: Identify the basic symptoms of nutritional deficiencies in different crops.

Specific Outcome 4: Demonstrate an understanding of soil properties.

Specific Outcome 5: Prepare soil using hand-held tools and low-technology ploughing implements.

Title: MANIPULATE PLANTS

Specific Outcome 1: Use tools and / or equipment for a pre-determined manipulation method in the correct way.

Specific Outcome 2: Develop frameworks as part of plant manipulation methods.

Specific Outcome 3: Understand flower and fruit manipulation principles.

Specific Outcome 4: Apply correct simple pruning principles appropriate to the crop.

Title: RECOGNISE PESTS, DISEASES AND WEEDS ON CROPS

Specific Outcome 1: Distinguish between insects and other classes of animals.

Specific Outcome 2: Describe the general anatomy of an insect and where the crop damaging appendages are found.

Specific Outcome 3: Explain the different life cycles of an insect.

Specific Outcome 4: Identify and explain the damage insects cause.

Specific Outcome 5: Notice and report insects (pests and beneficials), disease symptoms and weeds to the supervisor.

Specific Outcome 6: Recognize that not all insects are pests, and that not all pests are insects.

Specific Outcome 7: Name what causes diseases in plants and explain the basic life cycles of microbial diseases.

Specific Outcome 8: Explain the ways in which insects, diseases and weeds can spread.

Title: HARVEST AGRICULTURAL CROPS

Specific Outcome 1: Use appropriate tools / equipment for pre-determined harvesting method.

Specific Outcome 2: Carry out sampling for maturity indexing according to pre-determined requirements.

Specific Outcome 3: Harvest crops following specific prescribed procedures.

Specific Outcome 4: Adhere to health, hygiene and safety during harvesting.

Specific Outcome 5: Dispose of waste.

Specific Outcome 6: Care and maintain equipment used.

Title: PLANTING THE CROP UNDER SUPERVISION

Specific Outcome 1: Use and care for the tools and equipment in the planting of a specific crop.

Specific Outcome 2: Handle planting material correctly for the successful establishment of a specific crop.

Specific Outcome 3: Describe the basic effects of the environment on specific crops.

Specific Outcome 4: Plant planting stock at correct spacing between rows, between individual plants, and at the correct depth for specific plant species.

ANIMAL PRODUCTION

Title: **APPLY STANDARD ANIMAL FEEDING PROCEDURES**

Specific Outcome 1: Follow correct on-farm procedures to maintain feed quality.

Specific Outcome 2: Apply feed level control and record keeping.

Specific Outcome 3: Select appropriate feed type and quantity as per instruction.

Specific Outcome 4: Observe and report on feed quality before allowing animals access to feed.

Specific Outcome 5: Apply correct feeding under supervision.

Specific Outcome 6: Identify and report abnormal feeding behaviour in animals.

Title: **HARVEST ANIMAL PRODUCTS**

Specific Outcome 1: Understand and describe the origin and purpose of animal products for harvesting and use.

Specific Outcome 2: Understand and describe the status of the animal products to be harvested.

Specific Outcome 3: Understand and describe the names, identification and potential of various animal products to be harvested.

Specific Outcome 4: Describe and demonstrate correct procedures for the harvesting of animal products.

Title: OBSERVE AND HANDLE ANIMALS

Specific Outcome 1: Observe, record and report behaviour and physical attributes.

Specific Outcome 2: Evaluate animal behaviour and attributes regarding abnormalities.

Specific Outcome 3: Collect and move animals to a holding facility.

Specific Outcome 4: Restrain animals in a holding facility.

ELECTIVE

Title: UNDERSTAND ORGANIC MARKET REQUIREMENTS

Specific Outcome 1: Be familiar with basic requirements of the local and organic markets.

Specific Outcome 2: Be aware of local market outlets.

**Title: DEMONSTRATE AN UNDERSTANDING OF
AGRI/ECOTOURISM AS A SYSTEM AT MICRO LEVEL**

Specific Outcome 1: Have a basic knowledge of the tourist industry.

Specific Outcome 2: Identify the Agri/Ecotourist on the site (micro level).

Specific Outcome 3: Recognize the needs of the tourist at this level.

Specific Outcome 4: Identify and locate the tourism infrastructure, attractions and activities on the agri/eco site.

Specific Outcome 5: State operational, organizational and tourism practices on the Agri/Ecotourism site.

Title: IDENTIFY AND EXPLAIN PERMACULTURE PRINCIPLES

Specific Outcome 1: Identify site elements and resources and list their inputs and outputs.

Specific Outcome 2: Perform routine tasks related to the use of biological and other available resources.

Specific Outcome 3: Recognise and describe ecological processes and cycles.

Specific Outcome 4: Identify sustainable living practices.

**Title: PERFORM BASIC ROUTINE OPERATIONS IN A DEFINED
HYDROPONIC CONTEXT**

Specific Outcome 1: Prepare a production area for crop establishment.

Specific Outcome 2: Establish a hydroponic crop.

Specific Outcome 3: Identify the basic differences i.e. hydroponic and conventional (soil) production.

Title: APPLY BASIC DAIRY PRODUCTION PRACTICES

Specific Outcome 1: Demonstrate the ability to bring animals to a milking station, restrain them and allow them out again.

Specific Outcome 2: Demonstrate the ability to clean the working area in the parlour.

Specific Outcome 3: Demonstrate the ability to ensure the free movement of wastewater away from the working area.

Specific Outcome 4: Demonstrate the ability to clean dairy utensils effectively.

Specific Outcome 5: Demonstrate basic routines for fly control.

Title: APPLY BASIC PRACTICAL PIG HUSBANDRY PRACTICES

Specific Outcome 1: Demonstrate the procedures to be followed in the preparation of the farrowing house.

Specific Outcome 2: Demonstrate the procedures to be followed in the preparation of the sows for the farrowing house.

Specific Outcome 3: Apply appropriate feeding practices.

Specific Outcome 4: Demonstrate the ability to clean and disinfect pig housing.

Specific Outcome 5: Ensure the observance of bio-security in the piggery.

Title: SORT AND HANDLE ANIMAL FIBRE

Specific Outcome 1: Demonstrate the picking up and casting of a fleece.

Specific Outcome 2: Show the ability to skirt a fleece to remove inferior wool.

Specific Outcome 3: Identify the different components of a fleece and class the fleece accordingly.

Specific Outcome 4: Identify and class skirtings, belly pieces and lox.

Specific Outcome 5: Demonstrate the pressing, closing and marking of bales.

Title: UNDERSTAND THE BASIC PRACTICES OF BEEKEEPING AND THE BENEFIT THEREOF FOR AGRICULTURE

Specific Outcome 1: Understand and describe the origin of nectar, pollen and propolis in plants.

Specific Outcome 2: Understand and describe the effects of environmental factors on the production of nutrients and products in a plant.

Specific Outcome 3: Understand and describe the names and identification of the most important known nutritional resource plants for nectar, pollen and propolis production.

Specific Outcome 4: Understand and describe the potential of the most important known bee-plants.



Level 1.3

National Certificate In Plant Production, NQF Level 1

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 1

Credits: 120

Issue Date:

Review Date:

RATIONALE:

This qualification provides learners the opportunity to gain a qualification in Plant Production. The range of typical learners that will enter this qualification will vary and includes:

- New entrants in farming who wish to progress to the level of Junior Labourer within farming operations in Plant Production;
- New entrants that wishes to enter the sector as farmers;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- Possible candidates for promotion identified by the community as leaders.
- Learners may come from both genders.

The learner will engage in operational activities relevant to Plant Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Plant Production) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of plant production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will participate in the production of quality agricultural products in Plant Production whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow new entrants access to the Primary Agricultural Sector with specific reference to Plant Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to participate as part of a working team, performing the agricultural processes as applicable to Plant production in a closely defined context and under close supervision.
- Competency will be gained in any of the specialized sub-fields of Plant Production as specified under **Areas Of Specialization** (i.e. Vegetables, Fruit Production, Hydroponics, etc.)
- The learner will be able to take responsible decisions within a limited range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Plant Production context.
- The Learner will be able to carry out repetitive procedures in a predictable environment and will be able to adhere to the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- Finally, this qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to ABET 3.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into five categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Agricultural Practices
- Plant Production; and
- Animal Production (This component has been included to ensure that Learners at this level is exposed to a small component of animal production)

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply various communication skills within the agricultural environment.	<ul style="list-style-type: none"> • Oral reports are made or data is entered on pre-printed forms or screens. • Instructions (including challenging, inappropriate or incorrect instructions) are received, evaluated, clarified and acted on. • Workplace language, e.g. special purpose gestures and terminology to describe conditions, events, problems and actions is used. • Meetings (describe conditions, state own opinions) are participated in. • Information is collected from a variety of sources by recognising / reading / and/or using sensory cues. • Information (collected from instruments, gauges, outputs, incidents, operations) is organised, summarised and responded to. • Conditions or states are determined by measuring (i.e. temperature, size, mass, colour).
Apply mathematical calculations within the agricultural	<ul style="list-style-type: none"> • Numbers are used to count and measure. • A calculator is used to add, subtract, divide

environment.	<p>or multiply.</p> <ul style="list-style-type: none"> • Simple fractions and decimals are read and written. • Simple ratios / percentages are applied as part of an instruction. • Proper use is made of number sequence, i.e. batch numbers. • Shapes are recognised. • Money is calculated in Rands and cents (related to pay, deductions, price, etc.) • Business related application are applied. • Underpinning natural science principles are applied.
Safely and accurately collect routine agricultural data by applying prescribed methods of data collection for agricultural purposes.	<ul style="list-style-type: none"> • Different elementary data collection methods are applied whilst agricultural data is collected. • Collected agricultural data is recorded correctly and accurately. • Data collection equipment is used and maintained. • Appropriate health, safety and hygiene standards are maintained throughout the data collection process.
Recognise the basic concepts of sustainable farming practices and be able to perform basic tasks in applying sustainable farming practices	<ul style="list-style-type: none"> • Basic environmental patterns and processes such as soils, climate, water sources, topography, ecosystems pertaining to local conditions only are recognized. • An elementary comprehension of farming systems and design such as internal and external inputs; local, regional and export markets; diverse income sources; needs and aspirations of people is demonstrated. • Measurable indicators of sustainability such as social, economic and ecological are identified and described.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Keep record and report appropriately on inputs and resources in an agricultural environment.	<ul style="list-style-type: none"> • Agricultural inputs are received. • Storage information on inputs is sourced. • Stock levels are maintained. • Accurate records are kept. • Safety regulations are observed.
Describe the production process in an agricultural environment.	<ul style="list-style-type: none"> • The concept of production is explained. • The basic functions within the production process are explained. • The transformation/conversion process is explained.
Describe the importance of marketing within the agricultural production process.	<ul style="list-style-type: none"> • The marketing concept is explained. • The principles of supply and demand are explained. • The components and importance of marketing mix are explained.
Keep an accurate and current simple financial record keeping system in an agri-business environment.	<ul style="list-style-type: none"> • Capital investment is explained. • Flow of money is explained. • Flow of cost is explained. • The concept of profit and loss is explained. • The basic components of basic financial record keeping system are explained.
Apply the basic principles of human resources management in an agricultural environment.	<ul style="list-style-type: none"> • Explain HR management rules and procedures applicable to the immediate work environment. • Adhere to relevant LR legislation. • Identify the different types and purposes of contracts and agreements. • Describe and apply health and safety rules and practices applicable to the workplace.
Understand the basic principles of enterprise selection and production.	<ul style="list-style-type: none"> • The natural resources required for the selection of an agricultural enterprise are identified, recognized and described. • The infrastructural requirements for the selection of the relevant enterprise are determined and described. • All livestock or crops on the farm are identified. • The relation between the natural resources, infrastructure, the choice of stock or crop and production cycle is explained.

3. **Agricultural Practices**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply sound food safety principles by identifying risk factors in food contamination and applying preventative measures to ensure product safety.	<ul style="list-style-type: none"> • Good personal hygiene practices are applied. • Preventative measures against food contamination are applied. • Warning signs regarding product safety (where applicable) are adhered to.
Observe and maintain basic water quality by working with the technical systems that control quality factors in water.	<ul style="list-style-type: none"> • Water is sampled correctly and quality observed. • Water quality is recorded and reported on. • Minor maintenance tasks are performed on water quality technical systems.
Incorporate an understanding of the role of natural resource management in sustainable agricultural practices into existing farming activities by applying basic practices to conserve the environment, including natural resources,	<ul style="list-style-type: none"> • The impact of farming operations and practices on the environment is explained. • Environmentally friendly methods of disposal and/or re-use of farm and domestically generated waste and pollutants are applied. • Biodiversity is maintained and increased. • Invasive alien plant species and noxious weeds are cleared. • On farm fire breaks and/or fire guards are established.
Carry out basic physical farm layout tasks including construction of rainwater harvesting and soil conservation structures in a small farm or garden environment	<ul style="list-style-type: none"> • Veld, planted pasture and arable land are recognized. • Soil physical characteristics are related to land capability. • A swale (level contour bund), using a simple water level is constructed. • Swales and soil erosion prevention structures are maintained.
Operate, care for and store basic tools and equipment in a safe and responsible manner.	<ul style="list-style-type: none"> • Tools and equipment that had been selected from a range of tools, are appropriate to the agricultural task. • Problems related to the use of tools and equipment are recognized and appropriate action is taken. • Routine maintenance tasks are performed in a safe manner. • Agricultural equipment is cleaned and stored correctly.

4. **Plant Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Demonstrate an elementary understanding of the parts of a plant and their basic functions.	<ul style="list-style-type: none"> • The different parts of a plant are located, identified and described. • The role of the parts of the plant is described. • The relation between the plant and environment is explained.
Apply soil nutrient preparations in a safe, effective and responsible manner.	<ul style="list-style-type: none"> • Identify and apply nutrients correctly by using the appropriate application techniques. • Basic symptoms of nutritional deficiencies are identified. • Soil properties are explained.
Assist with the propagation of plants.	<ul style="list-style-type: none"> • The propagation environment and the components thereof are identified and the role/effect on propagation is described. • Propagation material and media are prepared according to the propagation environment. • Routine propagation methods are applied. • Routine post propagation methods are applied. • Safety and hygiene measures are applied.
Harvest agricultural crops by using basic harvesting tools.	<ul style="list-style-type: none"> • Tools, appropriate to the harvesting method and crop, are selected and the correct usage is demonstrated. • Crop is sampled for maturity indexing. • Harvesting procedures are applied. • Health, hygiene and safety measures are adhered to and applied.
Plant a range of crops according to correct placing, spacing and depth of the plant material.	<ul style="list-style-type: none"> • Soil or growth medium is prepared and irrigated according to the plant/crop requirements. • Planting material is handled correctly for the successful establishment. • The effects of the environment on the specific crop are explained. • Correct placing, spacing and depth of the plant material is determined.
Identify insects and explain the damage it can cause to crops.	<ul style="list-style-type: none"> • Insects and other classes of animals are distinguished. • The basic anatomy of an insect is described. • Crop damaging appendages are located and the damages to plants are explained. • The life cycle of an insect is explained. • Distinguish between harmful and useful insects and pests.
Manipulate plants using pre-determined methods and techniques.	<ul style="list-style-type: none"> • Frameworks are developed according to the requirements of the crop. • Pruning, training and other manipulation techniques are applied.

NOTE: Assessment should be specific to the area of operation (i.e. Either horticulture or agronomy including but not limited to arable and/or dry land production).

5. Animal Production

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Produce livestock whilst demonstrating an understanding of the environment and its relationship to sustainable livestock production	<ul style="list-style-type: none"> • Environmental factors influencing the veld are identified and described. • Environmental factors that influence livestock selection are analysed and described. • Supplementary feeding options for livestock production are identified and described. • Beneficial and harmful organisms that influence livestock production are identified and described. [Range: emphasis on locally important parasites and diseases] • The effects of agricultural management practices on the sustainability of the environment identified and assessed.

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Certificate I in Agriculture in a plant production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is comparable to a NZNQF National Certificate in Agriculture (Level 1) in a plant production context. It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicons whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in agricultural plant production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as deciduous fruit, agronomic crop, sugar cane, vegetables, etc.) and/or system such as permaculture, organic production, hydroponic, etc.
- Technical competence in agricultural plant production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Plant Production include but are not limited to:

- Organic production,
- Hydroponic production,
- Perma-culture production,
- Agronomy,
- Horticulture,
- Natural resources harvesting.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned

under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Animal Production, NQF 1;
- National Certificate in Mixed Farming Systems, NQF 1.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 2, namely:

- National Certificate in Plant Production, NQF 2.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers.

The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Plant Production, NQF Level 1

FUNDAMENTAL

A minimum of 46 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
12462	Engage in a range of speaking and listening interaction for a variety of purposes	1	6
12471	Explore and use a variety of strategies to learn	1	5
12469	Read and respond to a range of texts	1	6
12470	Write for a variety of different purposes	1	6
	total		23

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
7451	Collect, analyse, use and communicate numerical data	1	2
14084	Demonstrate an understanding of and use the numbering system	1	1
7452	Describe, represent and interpret mathematical models in different contexts	1	6
7450	Work with measurement in a variety of contexts	1	2
7447	Working with numbers in various contexts	1	6
	Total		17

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Collect Agricultural Data	1	2
New	Demonstrate an Understanding of the Basic Concepts of Sustainable Farming Systems	1	4
	Total		6

CORE

62 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Handle inputs and stock in agribusiness	1	2
New	Define production and understand the basic activities of production conversion in the agribusiness environment.	1	2
New	Demonstrate an understanding of the importance of marketing.	1	2
New	Identify the need for capital and understand the need for the recording of the income and different costs in an agribusiness.	1	2
New	Apply basic human resources management principles and practices applicable in an agricultural environment	1	2
New	Apply basic agricultural enterprise selection.	1	2

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Apply basic food safety practices.	1	1
New	Maintain basic water quality	1	1
New	Understand how sustainable farming systems conserve natural resources.	1	4
New	Apply elementary farm layout and infrastructure	1	2
New	Select use and care for hand tools and basic equipment and infrastructure.	1	4

PLANT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Demonstrate a basic understanding of the structure and function of a plant in relation to its environment.	1	4
New	Fertilise soil and attend to basic plant nutrition.	1	5
New	Propagate plants.	1	4
New	Operate and maintain irrigation systems.	1	2
New	Manipulate plants.	1	5
New	Recognise pests and diseases and weeds on crops.	1	5
New	Harvest agricultural crops.	1	5
New	Plant the crop under supervision.	1	4
13356	Assess the influence of the environment on sustainable livestock production	1	4

ELECTIVE

A minimum of 12 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELD OF SPECIALISATION: SUSTAINABLE HARVESTING OF NATURAL RESOURCES			
NLRD	TITLE	LEVEL	CREDIT
New	Understand organic market requirements	1	3

FIELD OF SPECIALISATION: PERMA-CULTURE PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Identify and explain permaculture principles	1	8

FIELD OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Demonstrate an understanding of agri/eco-tourism as a system at micro level.	1	5

FIELD OF SPECIALISATION: HYDROPONIC PRODUCTION			
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NLRD	TITLE	LEVEL	CREDIT
New	Perform basic routine operations in a defined hydroponic context.	1	5

National Certificate In Plant Production, NQF Level 1

Unit Standards NQF 1

Title: COLLECT AGRICULTURAL DATA

Specific Outcome 1: Demonstrate knowledge of different elementary methods of data collection.

Specific Outcome 2: Collect and report on collected agricultural data by using prescribed collection methods.

Specific Outcome 3: Apply methods of recording collected data using various types of technology.

Specific Outcome 4: Use and maintain data collection equipment correctly.

Specific Outcome 5: Apply health and safety measures applicable to the collection method and equipment.

Title: DEMONSTRATE AN UNDERSTANDING OF THE BASIC CONCEPTS OF SUSTAINABLE FARMING SYSTEMS

Specific Outcome 1: Recognise basic environmental patterns and processes.

Specific Outcome 2: Demonstrate an elementary comprehension of farming systems and design.

Specific Outcome 3: Identify and describe measurable indicators of sustainability.

AGRICULTURAL BUSINESS

Title: HANDLE INPUTS AND STOCK IN AGRI-BUSINESS

Specific Outcome 1: Prepare to receive agricultural inputs into an appropriate store at the appropriate time.

Specific Outcome 2: Source information about inputs with respect to types, quality and quantity.

Specific Outcome 3: Keep accurate records and handle stock.

Specific Outcome 4: Demonstrate understanding of input costs and value of inventory.

Specific Outcome 5: Identify legislation regarding different inputs.

Specific Outcome 6: Observe safety regulations.

Specific Outcome 7: Schedule supply of inputs with regards to consumption.

Title: **DEFINE PRODUCTION AND UNDERSTAND THE BASIC ACTIVITIES OF PRODUCTION / CONVERSION IN THE AGRI-BUSINESS ENVIRONMENT**

Specific Outcome 1: Describe the rudiments and components of the agricultural production environment.

Specific Outcome 2: Identify the components and purposes of basic production systems.

Specific Outcome 3: Identify basic production factors used in the agricultural production process.

Specific Outcome 4: Define the production and conversion process in terms of an agricultural business environment.

Title: **DEMONSTRATE AN UNDERSTANDING OF THE IMPORTANCE OF MARKETING**

Specific Outcome 1: Understand what is meant by “marketing concept”.

Specific Outcome 2: Understand the differences between and the value of demand and production driven farming practices.

Specific Outcome 3: Identify the principles of demand and supply and therefore basic price formulation.

Specific Outcome 4: Demonstrate the principles of marketing by the needs of customers/clients.

Title: IDENTIFY THE NEED FOR CAPITAL AND UNDERSTAND THE NEED FOR THE RECORDING OF THE INCOME AND DIFFERENT COSTS IN AN AGRI-BUSINESS

Specific Outcome 1: Describe the need for investment capital, where it can be acquired and how it can be categorised within an agri-business.

Specific Outcome 2: Explain the flow of money in an agric-business.

Specific Outcome 3: Describe the flow of costs in an agri-business.

Specific Outcome 4: Identify the basic components of financial information and record keeping system and the basic administration procedures regarding source documents.

Specific Outcome 5: Provide inputs to a simple record keeping system for an agri-business, and be able to extract managerial information from it.

Title: APPLY BASIC HUMAN RESOURCES MANAGEMENT PRINCIPLES AND PRACTICES APPLICABLE IN AN AGRICULTURAL ENVIRONMENT

Specific Outcome 1: Name and define human resource management rules and procedures applicable to the immediate working environment.

Specific Outcome 2: Name and identify labour legislation applicable to the immediate working environment.

Specific Outcome 3: Identify and describe the different types of contracts and agreements applicable to the workplace.

Specific Outcome 4: Describe the different human resource benefits applicable at the workplace.

Specific Outcome 5: Know and describe the health and safety rules and practices applicable at the workplace.

Specific Outcome 6: Demonstrate basic knowledge on the filing of applicable human resource information.

Title: APPLY BASIC AGRICULTURAL ENTERPRISE SELECTION

Specific Outcome 1: Name natural resources required for the selection of the relevant enterprise.

Specific Outcome 2: Describe infrastructure requirements for the selection of the relevant enterprise.

Specific Outcome 3: Identify appropriate crops and/or animals for the relevant enterprise.

Specific Outcome 4: Recognise the production cycle within relevant enterprise.

Specific Outcome 5: Identify harvest practice within the relevant enterprise.

Specific Outcome 6: Describe post harvest practice within relevant enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: APPLY BASIC FOOD SAFETY PRACTICES

Specific Outcome 1: Apply good personal hygiene practices.

Specific Outcome 2: Demonstrate an understanding of risk factors in food contamination.

Specific Outcome 3: Apply preventative measures against food contamination.

Specific Outcome 4: Understand and adhere to warning signs regarding product safety (where applicable).

Title: MAINTAIN BASIC WATER QUALITY

Specific Outcome 1: Demonstrate a basic ability to sample and observe water quality.

Specific Outcome 2: Demonstrate an ability to perform maintenance tasks on certain operational technical systems.

Specific Outcome 3: Demonstrate the ability to handle systems to maintain water quality.

Specific Outcome 4: Record basic observations and applications regarding water quality.

**Title: UNDERSTAND HOW SUSTAINABLE FARMING SYSTEMS
CONSERVE NATURAL RESOURCES**

Specific Outcome 1: Demonstrate an understanding of the impact of farming operations and practices on the environment.

Specific Outcome 2: Identify farm and domestically generated waste and pollutants and apply environmentally friendly methods of disposal and/or re-use.

Specific Outcome 3: Apply practices to maintain and increase biodiversity.

Specific Outcome 4: Understand how to control invasive alien plant species and noxious weeds.

Specific Outcome 5: Prevent the spread of veld fires using on farm firebreaks and/or fireguards.

Specific Outcome 6: Apply basic control and preventative measures to enhance the soil's capacity to hold water and prevent water run-off.

**Title: APPLY ELEMENTARY FARM LAYOUT AND
INFRASTRUCTURE**

Specific Outcome 1: Recognise veld types, planted pasture and arable land, and understand the need for the conservation of the related natural resources in the layout of the farm.

Specific Outcome 2: Recognise the animal life, the impact of farm animals and humans and understand the need for the conservation of related natural resources in the layout of the farm.

Specific Outcome 3: Recognise the need to plan infrastructure to limit the impact on natural resources and ensure sustainable resource use.

Specific Outcome 4: Construct prevention structures and elementary infrastructure as planned for farm layout.

Specific Outcome 5: Maintain prevention structures and report major problems to a supervisor.

Title: **SELECT, USE AND CARE FOR HAND TOOLS AND BASIC EQUIPMENT AND INFRASTRUCTURE**

Specific Outcome 1: Select and use appropriate equipment and implements for a specific agricultural task.

Specific Outcome 2: Recognise and act on problems related to the use of hand tools and basic equipment in an agricultural environment.

Specific Outcome 3: Perform routine maintenance tasks to hand tools and basic equipment that are not functioning properly.

Specific Outcome 4: Store hand tools and basic equipment correctly and safely.

Specific Outcome 5: Identify and apply the correct safety measures when using hand tools and basic agricultural equipment.

PLANT PRODUCTION

Title: **DEMONSTRATE A BASIC UNDERSTANDING OF THE STRUCTURE AND FUNCTION OF A PLANT IN RELATION TO ITS ENVIRONMENT**

Specific Outcome 1: Locate and identify the different parts of a plant.

Specific Outcome 2: Describe the role of the different parts of the plant.

Specific Outcome 3: Describe how the plant relates to the environment.

Title: **FERTILISE SOIL AND ATTEND TO BASIC PLANT NUTRITION**

Specific Outcome 1: Apply appropriate nutrient substances to soils or crops under close supervision.

Specific Outcome 2: Understand how to make compost and when to use it.

Specific Outcome 3: Identify the basic symptoms of nutritional deficiencies in different crops.

Specific Outcome 4: Demonstrate an understanding of soil properties.

Specific Outcome 5: Prepare soil using hand-held tools and low-technology ploughing implements.

Title: PROPAGATE PLANTS

Specific Outcome 1: Identify the propagation environment within a specific agricultural production context.

Specific Outcome 2: Prepare propagation material and propagation media according to specific instructions.

Specific Outcome 3: Carry out routine propagation procedures within the specific agricultural propagation context under specific (close) supervision.

Specific Outcome 4: Carry out routine post propagation procedures within the specific production context under close supervision.

Title: OPERATE AND MAINTAIN IRRIGATION SYSTEMS

Specific Outcome 1: Identify and obtain appropriate tools for basic maintenance of irrigation systems.

Specific Outcome 2: Operate an irrigation system according to set procedures.

Specific Outcome 3: Identify the basic factors affecting crop growth under irrigation.

Title: MANIPULATE PLANTS

Specific Outcome 1: Use tools and / or equipment for a pre-determined manipulation method in the correct way.

Specific Outcome 2: Develop frameworks as part of plant manipulation methods.

Specific Outcome 3: Understand flower and fruit manipulation principles.

Specific Outcome 4: Apply correct simple pruning principles appropriate to the crop.

Title: RECOGNISE PESTS, DISEASES AND WEEDS ON CROPS

Specific Outcome 1: Distinguish between insects and other classes of animals.

Specific Outcome 2: Describe the general anatomy of an insect and where the crop damaging appendages are found.

Specific Outcome 3: Explain the different life cycles of an insect.

Specific Outcome 4: Identify and explain the damage insects cause.

Specific Outcome 5: Notice and report insects (pests and beneficials), disease symptoms and weeds to the supervisor.

Specific Outcome 6: Recognize that not all insects are pests, and that not all pests are insects.

Specific Outcome 7: Name what causes diseases in plants and explain the basic life cycles of microbial diseases.

Specific Outcome 8: Explain the ways in which insects, diseases and weeds can spread.

Title: HARVEST AGRICULTURAL CROPS

Specific Outcome 1: Use appropriate tools / equipment for pre-determined harvesting method.

Specific Outcome 2: Carry out sampling for maturity indexing according to pre-determined requirements.

Specific Outcome 3: Harvest crops following specific prescribed procedures.

Specific Outcome 4: Adhere to health, hygiene and safety during harvesting.

Specific Outcome 5: Dispose of waste.

Specific Outcome 6: Care and maintain equipment used.

Title: PLANT THE CROP UNDER SUPERVISION

Specific Outcome 1: Use and care for the tools and equipment in the planting of a specific crop.

Specific Outcome 2: Handle planting material correctly for the successful establishment of a specific crop.

Specific Outcome 3: Describe the basic effects of the environment on specific crops.

Specific Outcome 4: Plant planting stock at correct spacing between rows, between individual plants, and at the correct depth for specific plant species.

ELECTIVE

Title: UNDERSTAND ORGANIC MARKET REQUIREMENTS

Specific Outcome 1: Be familiar with basic requirements of the local and organic markets.

Specific Outcome 2: Be aware of local market outlets.

**Title: DEMONSTRATE AN UNDERSTANDING OF
AGRI/ECOTOURISM AS A SYSTEM AT MICRO LEVEL**

Specific Outcome 1: Have a basic knowledge of the tourist industry.

Specific Outcome 2: Identify the Agri/Ecotourist on the site (micro level).

Specific Outcome 3: Recognize the needs of the tourist at this level.

Specific Outcome 4: Identify and locate the tourism infrastructure, attractions and activities on the agri/eco site.

Specific Outcome 5: State operational, organizational and tourism practices on the Agri/Ecotourism site.

Title: IDENTIFY AND EXPLAIN PERMACULTURE PRINCIPLES

Specific Outcome 1: Identify site elements and resources and list their inputs and outputs.

Specific Outcome 2: Perform routine tasks related to the use of biological and other available resources.

Specific Outcome 3: Recognise and describe ecological processes and cycles.

Specific Outcome 4: Identify sustainable living practices.

Title: **PERFORM BASIC ROUTINE OPERATIONS IN A DEFINED
HYDROPONIC CONTEXT**

Specific Outcome 1: Prepare a production area for crop establishment.

Specific Outcome 2: Establish a hydroponic crop.

Specific Outcome 3: Identify the basic differences i.e. hydroponic and conventional
(soil) production.



LEVEL 2.1

National Certificate In Animal Production, NQF Level 2

Registration Number:

FIELD: Agriculture and Nature Conservation

SUB-FIELD: Primary Agriculture

LEVEL: 2

CREDITS: 120

REVIEW DATE:

RATIONALE:

This qualification provides learners the opportunity to gain a qualification in Animal Production. The range of typical learners that will enter this qualification will vary and includes:

- Junior farm labourers who wish to progress to the level of Labourer within farming operations in Animal Husbandry;
- Farm owners, in possession of an equivalent qualification at NQF 1;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- Possible candidates for promotion identified by the community as leaders.
- Learners may come from both genders.

The learner will engage in supervision and operational activities relevant to Animal Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Animal Husbandry) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of animal production and provides the basis of the establishment of

sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will participate in the production quality agricultural products in Animal Husbandry whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Junior Personnel and elected candidates to progress towards a position of farm labourer (operator) with specific reference to Animal Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to participate as part of a working team, performing the agricultural processes as applicable to animal production in an established and familiar context under general supervision.
- The Learner will be able to perform directed activities and take responsibility for the guiding others at lower level within an Animal Production context.
- Competency will be gained in any of the specialized sub-fields of Animal Production as specified under **Areas Of Specialization** (i.e. Small stock, Large Stock, Dairy Production, Aqua Culture, etc.)
- The learner will be able to take responsible decisions within a familiar range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Animal Production context.
- The Learner will be able to carry out familiar procedures in a limited environment and will be able to adhere to the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the

overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.
- Finally, Learners will be able to guide and direct others in terms of the implementation of smaller development projects within an Animal Production context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 1 and technical skills pertaining to agricultural activities equivalent to NQF 1.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into four categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Animal Production
- Plant Production (This component has been included to ensure that Learners at this level is exposed to a small component of plant production)

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply various communication skills within the agricultural environment.	<ul style="list-style-type: none"> • Oral reports are made or data is entered on pre-printed forms or screens. • Instructions (including challenging, inappropriate or incorrect instructions) are received, evaluated, clarified and acted on. • Workplace language, e.g. special purpose gestures and terminology to describe conditions, events, problems and actions is used. • Meetings (describe conditions, state own opinions) are participated in. • Information is collected from a variety of sources by recognising / reading / and/or using sensory cues.

	<ul style="list-style-type: none"> • Information (collected from instruments, gauges, outputs, incidents, operations) is organised, summarised and responded to. • Conditions or states are determined by measuring (i.e. temperature, size, mass, colour).
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> • Numbers are used to count and measure. • A calculator is used to add, subtract, divide or multiply. • Simple fractions and decimals are read and written. • Simple ratios / percentages are applied as part of an instruction. • Proper use is made of number sequence, i.e. batch numbers. • Shapes are recognised. • Money is calculated in Rands and cents (related to pay, deductions, price, etc.) • Business related application are applied. • Underpinning natural science principles are applied.
Collect and collate agricultural data and recognize and report on deviations	<ul style="list-style-type: none"> • Collected agricultural data is collated and recorded correctly and accurately. • Data is current and available when needed. • Methods of collating data are explained. • Health and safety measures are adhered to.
Explain basic functions of the environment by recognising patterns and processes, knowing local resources and basic sustainable agricultural processes using environmental indicators.	<ul style="list-style-type: none"> • Basic environmental patterns and processes are related to sustainable use of agricultural land. • Limitations of natural resources within the agricultural environment are recognized. • Principles of sustainable agriculture are applied. • Measures to prevent environmental degradation indicators are implemented.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply basic skills in record keeping, storage, contaminant management and associated legislation when controlling input and stock	<ul style="list-style-type: none"> • Storage space is prepared to receive stock through cleaning and disinfecting, identification of appropriate space for storage and prevention of contamination (direct and cross contamination). • Accurate records are kept by applying basic inventory taking, issuing and receiving of stock, identification of re-order level, reporting on stock levels and re-order prompting skills. • Legal issues regarding contracts, penalties and obligations as pertaining to input supply is explained. • Safety regulations are applied.
Set goals and objectives related to production / conversion systems within an agricultural business.	<ul style="list-style-type: none"> • The concept of optimal usage of resources and optimisation of outputs are explained. • Tasks are appropriately scheduled. • Human resources in terms of skills required, number of labourers required to execute tasks are identified. • Goals and objectives related to systems within an agricultural business are set.
Apply knowledge of the marketing principles within agriculture for a specific product or service.	<ul style="list-style-type: none"> • The value of marketing research is explained. • The marketing mix (product, promotion, place, price and people) to a selected enterprise is applied. • Limited and shared responsibility for the marketing budget is taken. • The importance of effective distribution channels is explained.
Define and illustrate the gross margin statement, income statement, balance sheet and cash flow budget as well as the different cost aspects that one can find in a business.	<ul style="list-style-type: none"> • Direct and indirect costs, as well as fixed and variable costs are explained. • An income statement, the balance sheet and a cash-flow budget and statement are explained. • Complete a template, showing and calculating the above financial calculations.
Describe and understand the principles of Human Resources Management as applied.	<ul style="list-style-type: none"> • Human resources philosophy, policies, rules, procedures and disciplinary environment applicable at farm level are explained. • Employment rights and responsibilities are explained. • Contracts and agreements are explained and interpreted.
Explain the principles and factors influencing agricultural enterprise	<ul style="list-style-type: none"> • Natural resources, infrastructural requirements and stock for the selection of

selection and production.	<p>a sustainable enterprise are recognized and described.</p> <ul style="list-style-type: none"> • Production cycles are recognised and described. • Harvesting and post-harvesting practices are described.
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3. **Good Agricultural Practices**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Monitor and support the implementation of food safety and quality, production, environmental and social practices and awareness within the agricultural supply chain.	<ul style="list-style-type: none"> • Non-conformances and deviations on food safety, quality and the environment practices are distinguish and reported on. • Risk factors in food safety and quality are identified and explained. • The importance of a systematic filing system for records in accordance with GAP (good agricultural practices) and GMP (good manufacturing practices) principles are explained.
Demonstrate an understanding of the importance of water quality to agriculture and to monitor and maintain water quality using established procedures.	<ul style="list-style-type: none"> • Basic water quality tests and analyses are performed and monitored. • Maintenance tasks on certain operational technical systems related to water quality are performed. • The importance of water quality to agriculture is explained.
Apply basic practices to conserve the environment, including natural resources.	<ul style="list-style-type: none"> • The principles of natural resource management are explained. • Invasive alien plant species and noxious weeds are eradicated. • On farm fire breaks and/or fire guards are established. • Eroded areas and potential soil erosion are identified and control measures are suggested. • The impact of the local climate and micro-climate is explained. • Harmful and useful fauna and flora and their purpose and/or effect on the farm is explained.
Select basic equipment and implements that are appropriate to a combination of activities within a single agricultural process.	<ul style="list-style-type: none"> • Appropriate tools, implements and/or equipment, to use in a specified combination of activities within a single agricultural process are selected from a limited range. • Malfunctioning tools and equipment are identified and minor repairs are performed. • Safety measures in the use of agricultural equipment and implements are explained and adhered to.
Carry out basic physical farm layout tasks including	<ul style="list-style-type: none"> • Veld, planted pasture and arable land are recognized.

construction of rainwater harvesting and soil conservation structures in a small farm or garden environment	<ul style="list-style-type: none"> • Soil physical characteristics are related to land capability. • A swale (level contour bund), using a simple water level is constructed. • Swales and soil erosion prevention structures are maintained.
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4. **Animal Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Evaluate animals externally with respect to their internal and external anatomical systems and morphology.	<ul style="list-style-type: none"> • The composition and structure of the external divisions or parts of animals and identify and evaluate gross abnormalities and their probable causes therein are identified and explained. • The basic composition and structures of further anatomical systems are identified and named. • The life cycles of the specific animal are described.
Explain the basic concepts used in animal nutrition, maintaining, preserving, modifying and enhancing the nutrient value of animal feeds and follow correct on-farm feeding practices.	<ul style="list-style-type: none"> • Basic nutrient groups and functions and feed ingredients and groups are explained. • Correct on-farm storage procedures are applied to maintain feed quality. • Feed processing procedures are applied correctly. • Appropriate feed type and quantity are selected and provided to animals. • Abnormal feeding behaviour is reported.
Identify and monitor breeding behaviour, and pre and post-partum behaviour of farm animals.	<ul style="list-style-type: none"> • Standing oestrus of female breeding animals and libido of the male breeding animal are observed and identified. • Signs of giving birth are identified. • Abnormal behaviour of breeding animals during the birth process is reported. • Post-partum behaviour of breeding animals is monitored.
Harvest animal products, prepare them for processing and identify processes involved in processing of animal products.	<ul style="list-style-type: none"> • The estimated qualitative and quantitative value of various animal products is identified. • Observations regarding the readiness of animal products for harvesting are report on. • Core animal product and waste are separated. • Correct harvesting techniques are applied. • Animal products are processed for preservation or presentation
Identify, record and report on abnormal animal behaviour and physical abnormalities, supervise the movement and restraint of animals and apply	<ul style="list-style-type: none"> • Abnormal behaviour is identified, inspected and recorded. • The movement and restraint of animals are supervised. • Basic procedures are performed.

treatment and perform basic procedures.	<ul style="list-style-type: none"> • Basic principles of basic Bio-Security are applied.
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NOTE: Assessment should be specific to the area of operation (i.e. Either large livestock, small livestock, pigs, poultry, etc.).

5. Plant Production

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Produce crop whilst demonstrating an understanding of the physical and biological environment and its relationship to sustainable production.	<ul style="list-style-type: none"> • Soil as a factor in crop production is explained. • Climatic factors influencing crop production and their practical implications are identified and described. • The importance of water as a factor in crop production • The influence of topography on crop production is identified, described and explained. • Biological organisms as a factor influencing crop production is identified, described and explained. • The effects of crop production practices on the sustainability of the environment are observed and assessed.

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Certificate II in Agriculture (General cross-sector qualification) in an animal production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for

specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is comparable to a NZNQF National Certificate in Agriculture (Level 2) in an animal production context. It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as

guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in animal production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as abalone, fish, ostriches, etc.) and/or system such as permaculture, organic production, etc.
- Technical competence in animal production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Animal Husbandry include but are not limited to:

- Small stock production,
- Large stock production,
- Dairy production,
- Pig production,
- Poultry production,
- Game,
- Aqua / mari culture,
- Commercial insects
- Animal fibres harvesting,
- Bee keeping,
- Natural resources harvesting
- Organic production,
- Perma-culture production,
- Etc.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.

- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Plant Production, NQF 2;
- National Certificate in Mixed Farming Systems, NQF 2.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 3, namely:

- National Certificate in Animal Production, NQF 3.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers. The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Animal Production, NQF Level 2

FUNDAMENTAL

A minimum of 43 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
8963	Access and use information from texts	2	5
8962	Maintain and adapt oral communication	2	5
8967	Use language and communication in occupational learning programs	2	5
8964	Write for a defined context	2	5
	total		20

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
14085	Apply basic knowledge of statistics in order to investigate life and work related problems	2	3
7479	Describe, represent and informally analyse shape and motion in 2- and 3- dimensional space	2	4
12444	Measure, estimate and calculate physical quantities and explore, describe and represent geometrical relationships in 2-dimensions in different life or workplace contexts	2	3
7469	Use mathematics to investigate and monitor the financial aspects of personal and community life	2	2
14086	Work with a wide range of patterns and basic functions and solve related problems	2	5
	total		24

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Monitor, collect and collate agricultural data	2	2
New	Recognise and identify the basic functions of the ecological environment	2	4

CORE

71 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Control inputs and stock in agribusiness	2	2
New	Define and understand production systems and production management.	2	2
New	Apply marketing principles in agriculture.	2	2
New	Illustrate and understand the basic lay-out of financial statements.	2	2
New	Explain principles of human resources management and practices in agriculture.	2	2
New	Identify and recognise factors influencing agricultural enterprise selection.	2	2

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Operate and support a food safety and quality management system in the agricultural supply chain.	2	2
New	Monitor water quality	2	3
New	Apply sustainable farming practices to conserve the ecological environment	2	5
New	Apply lay out principles for conservation and infrastructure.	2	5
New	Utilise and perform minor repairs and maintenance tasks on implements, equipment and infrastructure.	2	5
New	Apply crop protection and animal health products effectively and responsibly.	2	4

ANIMAL PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Evaluate external animal anatomy and morphology.	2	5
New	Understand animal nutrition.	2	7
New	Identify basic breeding practices for farm animals.	2	5
New	Apply animal products harvesting procedures	2	5
New	Observe and inspect animal health.	2	5
New	Respond correctly to control defensive behaviour in animals.	2	4
13355	Demonstrate an understanding of the physical and biological environment and its relationship to sustainable crop production.	1	4

ELECTIVE

A minimum of 6 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELDS OF SPECIALISATION: SMALL/LARGE STOCK PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New SETASA	Understand feedlot environment.	3	10
New SETASA	Determine livestock mass.	3	2
New SETASA	Administer livestock processing treatments.	2	8
New SETASA	Demonstrate an understanding of feedlot feed ingredient and blends.	3	6
New SETASA	Control feedbunker and water trough quality.	3	6
New SETASA	Mix and deliver feedlot feed to bunker.	2	4
8347	Control problem animals	2	4

FIELDS OF SPECIALISATION: DAIRY PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Explain dairy production cleanliness	2	5

FIELDS OF SPECIALISATION: PIG PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Explain basic pig husbandry practices	2	4

FIELDS OF SPECIALISATION: ANIMAL FIBRE HARVESTING			
NLRD	TITLE	LEVEL	CREDIT
New	Prepare a shearing shed for shearing	2	3

FIELDS OF SPECIALISATION: BEE KEEPING			
NLRD	TITLE	LEVEL	CREDIT
New	Consider plant botany during the placement of bee hives	2	2

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Participate in agri/eco-tourism practices at both micro and meso levels to tourists	2	4

National Certificate In Animal Production, NQF Level 2

Unit Standards NQF 2

AGRICULTURAL SPECIFIC FUNDAMENTAL

Title: MONITOR, COLLECT AND COLLATE AGRICULTURAL DATA

Specific Outcome 1: Identify and collect the required data.

Specific Outcome 2: Collate the collected data.

Specific Outcome 3: Record collated data and create reports in the required format.

Specific Outcome 4: Apply health and safety measures applicable to the collection method and equipment used.

Title: RECOGNISE AND IDENTIFY THE BASIC FUNCTIONS OF THE ECOLOGICAL ENVIRONMENT

Specific Outcome 1: Recognise patterns and processes of the environment and how they relate to the sustainable use of agricultural land.

Specific Outcome 2: Demonstrate an understanding of natural resources and recognise their limitations within the agricultural environment.

Specific Outcome 3: Demonstrate an understanding of sustainable agricultural principles.

Specific Outcome 4: Recognise environmental degradation indicators.

AGRICULTURAL BUSINESS

Title: CONTROL INPUTS AND STOCK IN AGRIBUSINESS

Specific Outcome 1: Plan to receive inputs into a store at the appropriate time.

Specific Outcome 2: Keep accurate records and manage stock.

Specific Outcome 3: Identify legislation regarding different inputs.

Specific Outcome 4: Observe safety regulations.

Title: DEFINE AND UNDERSTAND PRODUCTION SYSTEMS AND PRODUCTION MANAGEMENT

Specific Outcome 1: Understand production systems in an agri-business environment.

Specific Outcome 2: Understand and define the basic managerial tasks.

Specific Outcome 3: Understand and define the additional production management tasks.

Specific Outcome 4: Understand the process of setting goals and objectives related to systems within an agricultural business.

Title: APPLY MARKETING PRINCIPLES IN AGRICULTURE

Specific Outcome 1: Understand the value of marketing research.

Specific Outcome 2: Apply the marketing mix (product, promotion, place, price and people) to a selected enterprise.

Specific Outcome 3: Take limited and shared responsibility for the marketing budget.

Specific Outcome 4: Have an awareness and understanding of the importance of effective distribution channels for a specific agricultural commodity.

Title: **ILLUSTRATE AND UNDERSTAND THE BASIC LAYOUT OF FINANCIAL STATEMENTS**

Specific Outcome 1: Define and understand the gross margin statement and distinguish between direct and indirect costs, as well as fixed and variable costs.

Specific Outcome 2: Define and understand the income statement.

Specific Outcome 3: Define and understand the balance sheet.

Specific Outcome 4: Define and understand the structure of a cash-flow budget and statement.

Specific Outcome 5: Demonstrate an understanding of the legal responsibilities of an agri-business owner.

Title: **EXPLAIN PRINCIPLES OF HUMAN RESOURCES MANAGEMENT AND PRACTICES IN AGRICULTURE**

Specific Outcome 1: Demonstrate an awareness and basic understanding of the farm's Human Resources policy with specific reference to rules and procedures.

Specific Outcome 2: Explain and identify labour legislation applicable at the work situation.

Specific Outcome 3: Explain and interpret contracts and agreements applicable at the workplace.

Specific Outcome 4: Explain and adhere to health and safety rules and practices.

Title: **IDENTIFY AND RECOGNISE FACTORS INFLUENCING AGRICULTURAL ENTERPRISE SELECTION**

Specific Outcome 1: Name and recognise natural resources required for the selection of the relevant enterprise.

Specific Outcome 2: Describe and recognise infrastructural requirements for the selection of the relevant enterprise.

Specific Outcome 3: Identify and recognise stock required for the relevant enterprise.

Specific Outcome 4: Recognise and describe production cycles within the relevant enterprise.

Specific Outcome 5: Identify and recognise harvest practices within the relevant enterprise.

Specific Outcome 6: Describe and recognise post harvest practices within relevant enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: **OPERATE AND SUPPORT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN**

Specific Outcome 1: Apply basic food safety practices.

Specific Outcome 2: Illustrate a basic knowledge to distinguish and to report non-conformances and deviations on food safety, quality and the environment in the agricultural supply chain.

Specific Outcome 3: Understanding basic health and social issues in the agricultural environment.

Specific Outcome 4: Demonstrate an understanding of risk factors in food safety and quality related to the agricultural supply chain.

Specific Outcome 5: Demonstrate basic understanding of record keeping activities on the farm.

Title: **MONITOR WATER QUALITY**

Specific Outcome 1: Demonstrate an understanding of water quality management.

Specific Outcome 2: Demonstrate an understanding of the importance of water to agriculture.

Specific Outcome 3: Demonstrate an ability to monitor and perform basic water quality tests and analyses.

Specific Outcome 4: Demonstrate an ability to perform and understand maintenance tasks on certain operational technical systems related to water quality.

Title: **APPLY SUSTAINABLE FARMING PRACTICES TO CONSERVE THE ECOLOGICAL ENVIRONMENT**

Specific Outcome 1: Demonstrate an understanding of natural resources and recognise how sound management contributes towards sustainable farming systems.

Specific Outcome 2: Eradicate alien plant species and noxious weeds.

Specific Outcome 3: Prevent the spread of veld fires by making firebreaks and/or fireguards on the farm.

Specific Outcome 4: Recognise harmful and useful fauna and flora and their purpose and/or effect on the farm.

Specific Outcome 5: Recognise eroded areas and potential soil erosion and carry out minor control measures.

Title: **APPLY LAYOUT PRINCIPLES FOR CONSERVATION AND INFRASTRUCTURE**

Specific Outcome 1: Recognise veld and soil types, animal and human behaviour and demarcate appropriate areas for sustainable resource use in the layout of the farm.

Specific Outcome 2: Construct the infrastructure and relate the physical and chemical characteristics of soil, landscape and local climate and land capability, and demarcate areas for sustainable use.

Specific Outcome 3: Understand the design of farm layout according to agricultural, water catchment and environmental conservation areas.

Specific Outcome 4: Design and construct basic infrastructure using simple tools and equipment.

Specific Outcome 5: Maintain, report faults, and where appropriate repair them under supervision.

Title: **UTILISE AND PERFORM MINOR REPAIR AND MAINTENANCE TASKS ON IMPLEMENTS, EQUIPMENT AND INFRASTRUCTURE**

Specific Outcome 1: Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.

Specific Outcome 2: Identify malfunctioning tools and equipment and perform minor repairs related to the use of equipment in an agricultural environment.

Specific Outcome 3: Maintain and store tools, implements, equipment and/or machinery according to specifications.

Specific Outcome 4: Adhere to and understand the necessary safety measures in the use of agricultural equipment and implements.

Title: **APPLY CROP CROP PROTECTION AND ANIMAL HEALTH PRODUCTS EFFECTIVELY AND RESPONSIBLY**

Specific Outcome 1: Implement a pre-application plan.

Specific Outcome 2: Mix correct pest control products at correct dose rate.

Specific Outcome 3: Apply pest control product to produce/crop or farm animals.

Specific Outcome 4: Take the necessary safety and health precautions whilst applying pest control products.

Specific Outcome 5: Apply post-application procedures.

Specific Outcome 6: Monitor and report on the process, problems and unusual occurrences to the supervisor.

Specific Outcome 7: Deal appropriately and effectively with emergencies.

ANIMAL PRODUCTION

Title: EVALUATE EXTERNAL ANIMAL ANATOMY AND MORPHOLOGY

Specific Outcome 1: Identify and name various levels of the standard nomenclature of the animal kingdom.

Specific Outcome 2: Identify and understand the names and purposes of the external divisions or parts of animals and identify and evaluate gross abnormalities and their probable causes therein.

Specific Outcome 3: Identify and understand the composition and structure of the external divisions or parts of animals and identify and evaluate gross abnormalities and their probable causes therein.

Specific Outcome 4: Identify and name the basic composition and structures of further anatomical systems according to criteria.

Specific Outcome 5: Identify and describe the life cycles of the specific animal.

Title: UNDERSTAND ANIMAL NUTRITION

Specific Outcome 1: Understand basic nutrient groups and functions and feed ingredients and groups.

Specific Outcome 2: Follow correct on-farm storage procedures to maintain feed quality Follow correct on-farm storage procedures to maintain feed quality.

Specific Outcome 3: Apply stock control and records.

Specific Outcome 4: Follow feed processing procedures for on-farm use.

Specific Outcome 5: Select appropriate feed type and quantity from feed store.

Specific Outcome 6: Apply correct feeding practices.

Specific Outcome 7: Identify abnormal feeding behaviour.

Title: IDENTIFY BASIC BREEDING PRACTICES FOR FARM ANIMALS

Specific Outcome 1: Identify standing oestrus of female breeding animals where appropriate.

Specific Outcome 2: Observe the libido of the male breeding animal where appropriate.

Specific Outcome 3: Recognise the signs of giving birth in female breeding animals.

Specific Outcome 4: Identify abnormal behaviour of breeding animals during the birth process.

Specific Outcome 5: Observe and monitor post-partum behaviour of breeding animals.

Title: APPLY ANIMAL PRODUCTS HARVESTING PROCEDURES

Specific Outcome 1: Identify the estimated qualitative and quantitative value of various animal products.

Specific Outcome 2: Observe, illustrate and report on observations in animals regarding animal products and their origin and their readiness for harvesting.

Specific Outcome 3: Identify and illustrate the core animal product and the parts of the product that are waste (if any)..

Specific Outcome 4: Demonstrate the harvesting of the specific animal product.

Specific Outcome 5: Identify and demonstrate the basic methodology regarding the separation of the core product from the waste.

Specific Outcome 6: Identify and demonstrate the basic methodologies regarding the processing of animal products for preservation or presentation.

Title: OBSERVE AND INSPECT ANIMAL HEALTH

Specific Outcome 1: Identify, inspect, and record abnormal behaviour.

Specific Outcome 2: Supervise the movement and restraint of animals.

Specific Outcome 3: Perform basic procedures under full supervision.

Specific Outcome 4: Apply basic principles of basic Bio-Security.

Title: RESPOND CORRECTLY TO CONTROL DEFENSIVE BEHAVIOUR IN ANIMALS

Specific Outcome 1: Illustrate possible responses to defensive behaviour.

Specific Outcome 2: Observe, illustrate and report on observations regarding defensive behaviour under supervision.

Specific Outcome 3: Explain correct reactions to minimise risk when working with animals.

Specific Outcome 4: List correct procedures when working with animals.

ELECTIVE

Title: EXPLAIN DAIRY PRODUCTION CLEANLINESS

Specific Outcome 1: Identify, mix and use suitable cleaning materials.

Specific Outcome 2: State the importance of rapid cooling of freshly drawn milk.

Specific Outcome 3: Demonstrate the ability to assess milk quality.

Specific Outcome 4: Demonstrate the ability to make use of different milking methods.

Specific Outcome 5: Demonstrate the ability to clean milking equipment effectively.

Title: EXPLAIN BASIC PIG HUSBANDRY PRACTICES

Specific Outcome 1: Identify and describe abnormalities occurring in the sows and boars in a piggery.

Specific Outcome 2: Identify and describe abnormalities occurring in piglets in a piggery.

Specific Outcome 3: Demonstrate the ability to weigh pigs of all ages, record data and report to appropriate supervisor.

Specific Outcome 4: Recognise and apply appropriate boar management practices in the piggery.

Title: PREPARE A SHEARING SHED FOR SHEARING

Specific Outcome 1: Describe the process to be followed to clean the shearing shed under supervision.

Specific Outcome 2: Recognise the different potential contaminant materials that can cause contamination problems in a shearing shed.

Specific Outcome 3: Organise and place shearing equipment correctly to ensure a streamlined shearing process.

Specific Outcome 4: Observe and report any structural deficiencies of the shed prior to the shearing process.

Title: PARTICIPATE IN AGRI/ECOTOURISM PRACTICES AT BOTH MICRO AND MESO LEVELS TO TOURISTS

Specific Outcome 1: Put the farm/reserve into a meso-level context – that is to be able to integrate the farm within its immediate wider environment.

Specific Outcome 2: Identify and distinguish between the needs of tourists at micro and meso level.

Specific Outcome 3: Identify and locate tourism infrastructure, attractions and activities on the agri/eco-site and local (meso) environment and conduct a limited guided experience within these parameters.

Specific Outcome 4: Describe operational, organizational (social) and tourism practices on the Agri/Eco site and at meso level.



LEVEL 2.2

National Certificate In Mixed Farming Systems, NQF Level 2

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 2

Credits: 120

Issue Date:

Review Date:

RATIONALE:

This qualification provides learners the opportunity to gain a qualification in Mixed Farming Systems (Plant- and Animal Production). The range of typical learners that will enter this qualification will vary and includes:

- Junior farm labourers who wish to progress to the level of Labourer within farming operations in Plant Production;
- Farm owners, in possession of an equivalent qualification at NQF 1;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- Possible candidates for promotion identified by the community as leaders.
- Learners may come from both genders.

The learner will engage in supervision and operational activities relevant to Plant Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of plant- and animal production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in mixed farming systems whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Junior Personnel and elected candidates to progress towards a position of farm labourers (operators) with specific reference to Mixed Farming systems. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to participate as part of a working team, performing the agricultural processes as applicable to both Plant- and Animal Production in an established and familiar context under general supervision.
- The Learner will be able to perform directed activities and take responsibility for the guiding others at lower level within a Mixed Farming context.
- Competency will be gained in a combination of the sub-fields of Plant and Animal Production as specified under **Areas Of Specialization** (i.e. Small Stock, Large Stock as well as Vegetables, Fruit Production, Hydroponics, etc.)
- The learner will be able to take responsible decisions within a familiar range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in Mixed Farming context.
- The Learner will be able to carry out familiar procedures in a limited environment and will be able to adhere to the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Animal Production, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.

- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.
- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.
- Finally, Learners will be able to guide and direct others in terms of the implementation of smaller development projects within Mixed Farming context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 1 and technical skills pertaining to agricultural activities equivalent to NQF 1.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into five categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Plant Production; and
- Animal Production

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply various communication skills within the agricultural environment.	<ul style="list-style-type: none"> • Oral reports are made or data is entered on pre-printed forms or screens. • Instructions (including challenging, inappropriate or incorrect instructions) are received, evaluated, clarified and acted on. • Workplace language, e.g. special purpose gestures and terminology to describe conditions, events, problems and actions is used. • Meetings (describe conditions, state own opinions) are participated in. • Information is collected from a variety of

	<p>sources by recognising / reading / and/or using sensory cues.</p> <ul style="list-style-type: none"> Information (collected from instruments, gauges, outputs, incidents, operations) is organised, summarised and responded to. Conditions or states are determined by measuring (i.e. temperature, size, mass, colour).
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> Numbers are used to count and measure. A calculator is used to add, subtract, divide or multiply. Simple fractions and decimals are read and written. Simple ratios / percentages are applied as part of an instruction. Proper use is made of number sequence, i.e. batch numbers. Shapes are recognised. Money is calculated in Rands and cents (related to pay, deductions, price, etc.) Business related application are applied. Underpinning natural science principles are applied.
Collect and collate agricultural data and recognize and report on deviations	<ul style="list-style-type: none"> Collected agricultural data is collated and recorded correctly and accurately. Data is current and available when needed. Methods of collating data are explained. Health and safety measures are adhered to.
Explain basic functions of the environment by recognising patterns and processes, knowing local resources and basic sustainable agricultural processes using environmental indicators.	<ul style="list-style-type: none"> Basic environmental patterns and processes are related to sustainable use of agricultural land. Limitations of natural resources within the agricultural environment are recognized. Principles of sustainable agriculture are applied. Measures to prevent environmental degradation indicators are implemented.

2. **Agri-business**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply basic skills in record keeping, storage, contaminant management and associated legislation when controlling input and stock	<ul style="list-style-type: none"> Storage space is prepared to receive stock through cleaning and disinfecting, identification of appropriate space for storage and prevention of contamination (direct and cross contamination). Accurate records are kept by applying basic inventory taking, issuing and receiving of stock, identification of re-order level, reporting on stock levels and re-order prompting skills.

	<ul style="list-style-type: none"> • Legal issues regarding contracts, penalties and obligations as pertaining to input supply is explained. • Safety regulations are applied.
Set goals and objectives related to production / conversion systems within an agricultural business.	<ul style="list-style-type: none"> • The concept of optimal usage of resources and optimisation of outputs are explained. • Tasks are appropriately scheduled. • Human resources in terms of skills required, number of labourers required to execute tasks are identified. • Goals and objectives related to systems within an agricultural business are set.
Apply knowledge of the marketing principles within agriculture for a specific product or service.	<ul style="list-style-type: none"> • The value of marketing research is explained. • The marketing mix (product, promotion, place, price and people) to a selected enterprise is applied. • Limited and shared responsibility for the marketing budget is taken. • The importance of effective distribution channels is explained.
Define and illustrate the gross margin statement, income statement, balance sheet and cash flow budget as well as the different cost aspects that one can find in a business.	<ul style="list-style-type: none"> • Direct and indirect costs, as well as fixed and variable costs are explained. • An income statement, the balance sheet and a cash-flow budget and statement are explained. • Complete a template, showing and calculating the above financial calculations.
Describe and understand the principles of Human Resources Management as applied	<ul style="list-style-type: none"> • Human resources philosophy, policies, rules, procedures and disciplinary environment applicable at farm level are explained. • Employment rights and responsibilities are explained. • Contracts and agreements are explained and interpreted.
Explain the principles and factors influencing agricultural enterprise selection and production.	<ul style="list-style-type: none"> • Natural resources, infrastructural requirements and stock for the selection of a sustainable enterprise are recognized and described. • Production cycles are recognised and described. • Harvesting and post-harvesting practices are described.

3. *Agricultural Practices*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Monitor and support the implementation of food safety and quality, production, environmental and social practices and awareness within the agricultural supply chain.	<ul style="list-style-type: none"> • Non-conformances and deviations on food safety, quality and the environment practices are distinguish and reported on. • Risk factors in food safety and quality are identified and explained. • The importance of a systematic filing system for records in accordance with GAP (good agricultural practices) and GMP (good manufacturing practices) principles are explained.
Demonstrate an understanding of the importance of water quality to agriculture and to monitor and maintain water quality using established procedures.	<ul style="list-style-type: none"> • Basic water quality tests and analyses are performed and monitored. • Maintenance tasks on certain operational technical systems related to water quality are performed. • The importance of water quality to agriculture is explained.
Apply basic practices to conserve the environment, including natural resources.	<ul style="list-style-type: none"> • The principles of natural resource management are explained. • Invasive alien plant species and noxious weeds are eradicated. • On farm fire breaks and/or fire guards are established. • Eroded areas and potential soil erosion are identified and control measures are suggested. • The impact of the local climate and micro-climate is explained. • Harmful and useful fauna and flora and their purpose and/or effect on the farm is explained.
Select basic equipment and implements that are appropriate to a combination of activities within a single agricultural process.	<ul style="list-style-type: none"> • Appropriate tools, implements and/or equipment, to use in a specified combination of activities within a single agricultural process are selected from a limited range. • Malfunctioning tools and equipment are identified and minor repairs are performed. • Safety measures in the use of agricultural equipment and implements are explained and adhered to.
Carry out basic physical farm layout tasks including construction of rainwater harvesting and soil conservation structures in a small farm or garden environment	<ul style="list-style-type: none"> • Veld, planted pasture and arable land are recognized. • Soil physical characteristics are related to land capability. • A swale (level contour bund), using a simple water level is constructed. • Swales and soil erosion prevention structures are maintained.

4. **Animal Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Explain the basic concepts used in animal nutrition, maintaining, preserving, modifying and enhancing the nutrient value of animal feeds and follow correct on-farm feeding practices.	<ul style="list-style-type: none"> • Basic nutrient groups and functions and feed ingredients and groups are explained. • Correct on-farm storage procedures are applied to maintain feed quality. • Feed processing procedures are applied correctly. • Appropriate feed type and quantity are selected and provided to animals. • Abnormal feeding behaviour is reported.
Identify, record and report on abnormal animal behaviour and physical abnormalities, supervise the movement and restraint of animals and apply treatment and perform basic procedures.	<ul style="list-style-type: none"> • Abnormal behaviour is identified, inspected and recorded. • The movement and restraint of animals are supervised. • Basic procedures are performed. • Basic principles of basic Bio-Security are applied.

NOTE: Assessment should be specific to the area of operation (i.e. Either large livestock, small livestock, pigs, poultry, etc.).

5. **Plant Production**

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Soil is prepared according to the requirements of the crop.	<ul style="list-style-type: none"> • Appropriate quantity and quality of required soil nutrient applications are measured and prepared. • The soil is prepared according to the requirements of the agricultural crop. • Basic symptoms of nutritional deficiencies are identified and explained. • The properties of soil are explained.
Recognize common insects, disease symptoms and weeds and apply basic control measures	<ul style="list-style-type: none"> • Common insects and types of weeds associated with the specific agricultural enterprise are identified and described. • Common symptoms of diseases are identified. • Old and new damage are distinguished and reported. • Monitoring of pests (scouting) and decrease/increase in pest levels after spraying or other control measures were applied, are explained.
Apply agrochemical products in a safe, effective and responsible manner with consideration to the environment.	<ul style="list-style-type: none"> • A pre-application plan is implemented. • Pest control products are mixed at the correct dose rate. • Pest control product is applied to produce/crop or farm animals. • Necessary safety and health precautions

	<p>whilst applying pest control products are applied and emergencies are dealt with.</p> <ul style="list-style-type: none"> • Post-application procedures are applied. • The process, problems and unusual occurrences are monitored and reported.
<p>Plant a range of crops and monitor the correct establish of crops as well as ensuring that planting is placed and spaced as required.</p>	<ul style="list-style-type: none"> • Appropriate tools and equipment used in the planting of a specific crop are selected, used and cared for. • Handling of planting material is monitored for successful establishment according to required procedures for a specific crop. • The impact of environmental conditions on the successful establishment of crops is explained. • The planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species are monitored.
<p>Manipulate plants by applying a narrow range of techniques</p>	<ul style="list-style-type: none"> • Various manipulation techniques are explained. • Framework development principles as part of plant manipulation methods are applied. • A range of flower and fruit manipulation methods are applied. • Pruning techniques as a vegetative plant manipulation method are applied. • Safety and hygiene measures are applied.

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

It should also be noted that this qualification is unique in the sense that it provides for the development of learners in both Plant- and Animal Production.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: Although no specific qualification of this nature exists within the AQF, this qualification is partly comparable to the AQF Certificates II (General cross-sector qualifications) in Agriculture in both a plant- and animal production context.

New Zealand NQF: Although no specific qualification of this nature exists within the NZQF, this qualification is partly comparable to the NZNQF National Certificates in Agriculture (Level 2) in both a plant- and animal production context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicons whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action

and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in mixed farming systems practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as abalone, fish, ostriches, agronomic crop, horticultural crop, vegetable production, etc.) and/or system such as permaculture, organic production, etc.
- Technical competence in mixed farming production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation in Animal Husbandry include but are not limited to:

- Small stock production,
- Large stock production,
- Dairy production,
- Pig production,
- Poultry production,
- Game,
- Aqua / mari culture,
- Commercial insects
- Animal fibres harvesting,
- Bee keeping,
- Natural resources harvesting
- Organic production,
- Perma-culture production,
- Eco/Agri Tourism,
- Agro Chemicals,
- Horse Breeding,
- Etc.

Areas of specialisation in Plant Production include but are not limited to:

- Organic production,
- Hydroponic production,
- Perma-culture production,
- Agronomy,
- Horticulture,
- Natural resources harvesting.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, organic systems, perma culture systems, vegetable production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Animal Production, NQF 2.
- National Certificate in Plant Production, NQF 2.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 3, namely:

- National Certificate in Animal Production, NQF 3.
- National Certificate in Plant Production, NQF 3.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers.

The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Mixed Farming Systems, NQF Level 2

FUNDAMENTAL

A minimum of 43 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
8963	Access and use information from texts	2	5
8962	Maintain and adapt oral communication	2	5
8967	Use language and communication in occupational learning programs	2	5
8964	Write for a defined context	2	5
	total		20

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
14085	Apply basic knowledge of statistics in order to investigate life and work related problems	2	3
7479	Describe, represent and informally analyse shape and motion in 2- and 3- dimensional space	2	4

12444	Measure, estimate and calculate physical quantities and explore, describe and represent geometrical relationships in 2-dimensions in different life or workplace contexts	2	3
7469	Use mathematics to investigate and monitor the financial aspects of personal and community life	2	2
14086	Work with a wide range of patterns and basic functions and solve related problems	2	5
	total		24

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Monitor, Collect and Collate Agricultural Data	2	2
New	Recognise and identify the Basic Functions of the Ecological Environment	2	4

CORE

64 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Control inputs and stock in agribusiness	2	2
New	Define and understand production systems and production management.	2	2
New	Apply marketing principles in agriculture.	2	2
New	Illustrate and understand the basic lay-out of financial statements.	2	2
New	Explain principles of human resources management and practices in agriculture.	2	2
New	Identify and recognise factors influencing agricultural enterprise selection.	2	2

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Operate and support a food safety and quality management system in the agricultural supply chain.	2	2
New	Monitor water quality	2	3
New	Apply sustainable farming practices to conserve the	2	5

	ecological environment		
New	Apply layout principles for conservation and infrastructure.	2	5
New	Utilise and perform minor repairs and maintenance tasks on implements, equipment and infrastructure.	2	5
New	Apply crop protection and animal health products effectively and responsibly.	2	4

PLANT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Understand basic soil fertility and plant nutrition	2	5
New	Apply plant manipulation methods.	2	4
New	Control pests and diseases and weeds on crops effectively and responsibly.	2	4
New	Monitor the establishment of a crop.	2	4

ANIMAL PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Understand animal nutrition.	2	7
New	Respond correctly to control defensive behaviour in animals.	2	4

ELECTIVE

A minimum of 13 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELDS OF SPECIALISATION: SMALL/LARGE STOCK PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New SETASA	Understand feedlot environment.	3	10
New SETASA	Determine livestock mass.	3	2
New SETASA	Administer livestock processing treatments.	2	8
New SETASA	Demonstrate an understanding of feedlot feed ingredient and blends.	3	6

New SETASA	Control feedbunker and water trough quality.	3	6
New SETASA	Mix and deliver feedlot feed to bunker.	2	4
8347	Control problem animals	2	4

FIELDS OF SPECIALISATION: DAIRY PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Explain dairy production cleanliness	2	5

FIELDS OF SPECIALISATION: PIG PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Explain basic pig husbandry practices	2	4

FIELDS OF SPECIALISATION: ANIMAL FIBRE HARVESTING			
NLRD	TITLE	LEVEL	CREDIT
New	Prepare a shearing shed for shearing	2	3

FIELDS OF SPECIALISATION: BEE KEEPING			
NLRD	TITLE	LEVEL	CREDIT
New	Consider plant botany during the placement of bee hives.	2	2

FIELD OF SPECIALISATION: SUSTAINABLE HARVESTING OF NATURAL RESOURCES			
NLRD	TITLE	LEVEL	CREDIT
New	Harvest natural flora	2	4

FIELD OF SPECIALISATION: ORGANIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Introduce organic certification and internal control systems.	2	2

FIELD OF SPECIALISATION: PERMA-CULTURE PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Interpret and illustrate permaculture principles	2	5

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Participate in agri/eco-tourism practices at both micro and meso levels to tourists	2	4

FIELD OF SPECIALISATION: AGRO-CHEMICALS			
NLRD	TITLE	LEVEL	CREDIT
New	Store and control agrochemical products effectively and responsibly.	2	4

FIELD OF SPECIALISATION: HYDROPONIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Perform routine operations and identify basic problems in hydroponic systems.	2	3

National Certificate In Mixed Farming Systems, NQF Level 2

Unit Standards NQF 2

AGRICULTURAL SPECIFIC FUNDAMENTAL

Title: MONITOR, COLLECT AND COLLATE AGRICULTURAL DATA

Specific Outcome 1: Identify and collect the required data.

Specific Outcome 2: Collate the collected data.

Specific Outcome 3: Record collated data and create reports in the required format.

Specific Outcome 4: Apply health and safety measures applicable to the collection method and equipment used.

Title: RECOGNISE AND IDENTIFY THE BASIC FUNCTIONS OF THE ECOLOGICAL ENVIRONMENT

Specific Outcome 1: Recognise patterns and processes of the environment and how they relate to the sustainable use of agricultural land.

Specific Outcome 2: Demonstrate an understanding of natural resources and recognise their limitations within the agricultural environment.

Specific Outcome 3: Demonstrate an understanding of sustainable agricultural principles.

Specific Outcome 4: Recognise environmental degradation indicators.

AGRICULTURAL BUSINESS

Title: **CONTROL INPUTS AND STOCK IN AGRIBUSINESS**

Specific Outcome 1: Plan to receive inputs into a store at the appropriate time.

Specific Outcome 2: Keep accurate records and manage stock.

Specific Outcome 3: Identify legislation regarding different inputs.

Specific Outcome 4: Observe safety regulations.

Title: **DEFINE AND UNDERSTAND PRODUCTION SYSTEMS AND PRODUCTION MANAGEMENT**

Specific Outcome 1: Understand production systems in an agri-business environment.

Specific Outcome 2: Understand and define the basic managerial tasks.

Specific Outcome 3: Understand and define the additional production management tasks.

Specific Outcome 4: Understand the process of setting goals and objectives related to systems within an agricultural business.

Title: **APPLY MARKETING PRINCIPLES IN AGRICULTURE**

Specific Outcome 1: Understand the value of marketing research.

Specific Outcome 2: Apply the marketing mix (product, promotion, place, price and people) to a selected enterprise.

Specific Outcome 3: Take limited and shared responsibility for the marketing budget.

Specific Outcome 4: Have an awareness and understanding of the importance of effective distribution channels for a specific agricultural commodity.

Title: ILLUSTRATE AND UNDERSTAND THE BASIC LAYOUT OF FINANCIAL STATEMENTS

Specific Outcome 1: Define and understand the gross margin statement and distinguish between direct and indirect costs, as well as fixed and variable costs.

Specific Outcome 2: Define and understand the income statement.

Specific Outcome 3: Define and understand the balance sheet.

Specific Outcome 4: Define and understand the structure of a cash-flow budget and statement.

Specific Outcome 5: Demonstrate an understanding of the legal responsibilities of an agri-business owner.

Title: EXPLAIN PRINCIPLES OF HUMAN RESOURCE MANAGEMENT AND PRACTICES IN AGRICULTURE

Specific Outcome 1: Demonstrate an awareness and basic understanding of the farm's Human Resources policy with specific reference to rules and procedures.

Specific Outcome 2: Explain and identify labour legislation applicable at the work situation.

Specific Outcome 3: Explain and interpret contracts and agreements applicable at the workplace.

Specific Outcome 4: Explain and adhere to health and safety rules and practices.

Title: IDENTIFY AND RECOGNISE FACTORS INFLUENCING AGRICULTURAL ENTERPRISE SELECTION

Specific Outcome 1: Name and recognise natural resources required for the selection of the relevant enterprise.

Specific Outcome 2: Describe and recognise infrastructural requirements for the selection of the relevant enterprise.

Specific Outcome 3: Identify and recognise stock required for the relevant enterprise.

Specific Outcome 4: Recognise and describe production cycles within the relevant enterprise.

Specific Outcome 5: Identify and recognise harvest practices within the relevant enterprise.

Specific Outcome 6: Describe and recognise post harvest practices within relevant enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: **OPERATE AND SUPPORT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN**

Specific Outcome 1: Apply basic food safety practices.

Specific Outcome 2: Illustrate a basic knowledge to distinguish and to report non-conformances and deviations on food safety, quality and the environment in the agricultural supply chain.

Specific Outcome 3: Understand basic health and social issues in the agricultural environment.

Specific Outcome 4: Demonstrate an understanding of risk factors in food safety and quality related to the agricultural supply chain.

Specific Outcome 5: Demonstrate basic understanding of record keeping activities on the farm.

Title: **MONITOR WATER QUALITY**

Specific Outcome 1: Demonstrate an understanding of water quality management.

Specific Outcome 2: Demonstrate an understanding of the importance of water to agriculture.

Specific Outcome 3: Demonstrate an ability to monitor and perform basic water quality tests and analyses.

Specific Outcome 4: Demonstrate an ability to perform and understand maintenance tasks on certain operational technical systems related to water quality.

Title: **APPLY SUSTAINABLE FARMING PRACTICES TO CONSERVE THE ECOLOGICAL ENVIRONMENT**

Specific Outcome 1: Demonstrate an understanding of natural resources and recognise how sound management contributes towards sustainable farming systems.

Specific Outcome 2: Eradicate alien plant species and noxious weeds.

Specific Outcome 3: Prevent the spread of veld fires by making firebreaks and/or fireguards on the farm.

Specific Outcome 4: Recognise harmful and useful fauna and flora and their purpose and/or effect on the farm.

Specific Outcome 5: Recognise eroded areas and potential soil erosion and carry out minor control measures.

Title: **APPLY LAYOUT PRINCIPLES FOR CONSERVATION AND INFRASTRUCTURE**

Specific Outcome 1: Recognise veld and soil types, animal and human behaviour and demarcate appropriate areas for sustainable resource use in the layout of the farm.

Specific Outcome 2: Construct the infrastructure and relate the physical and chemical characteristics of soil, landscape and local climate and land capability, and demarcate areas for sustainable use.

Specific Outcome 3: Understand the design of farm layout according to agricultural, water catchment and environmental conservation areas.

Specific Outcome 4: Design and construct basic infrastructure using simple tools and equipment.

Specific Outcome 5: Maintain, report faults, and where appropriate repair them under supervision.

Title: **UTILISE AND PERFORM MINOR REPAIR AND MAINTENANCE TASKS ON IMPLEMENTS, EQUIPMENT AND INFRASTRUCTURE**

Specific Outcome 1: Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.

Specific Outcome 2: Identify malfunctioning tools and equipment and perform minor repairs related to the use of equipment in an agricultural environment.

Specific Outcome 3: Maintain and store tools, implements, equipment and/or machinery according to specifications.

Specific Outcome 4: Adhere to and understand the necessary safety measures in the use of agricultural equipment and implements.

Title: **APPLY CROP PROTECTION AND ANIMAL HEALTH PRODUCTS EFFECTIVELY AND RESPONSIBLY**

Specific Outcome 1: Implement a pre-application plan.

Specific Outcome 2: Mix correct pest control products at correct dose rate.

Specific Outcome 3: Apply pest control product to produce/crop or farm animals.

Specific Outcome 4: Take the necessary safety and health precautions whilst applying pest control products.

Specific Outcome 5: Apply post-application procedures.

Specific Outcome 6: Monitor and report on the process, problems and unusual occurrences to the supervisor.

Specific Outcome 7: Deal appropriately and effectively with emergencies.

PLANT PRODUCTION

Title: UNDERSTAND BASIC SOIL FERTILITY AND PLANT NUTRITION

Specific Outcome 1: Accurately prepare and measure the appropriate quantity and quality of required soil nutrient applications.

Specific Outcome 2: Take an appropriate sample for nutrient analysis.

Specific Outcome 3: Understand the properties of soil and soil composition.

Specific Outcome 4: Identify and interpret the basic symptoms of nutritional deficiencies in crops.

Title: APPLY PLANT MANIPULATION METHODS

Specific Outcome 1: Demonstrate an understanding of the selection and use of appropriate tools and equipment for a pre-determined manipulation method.

Specific Outcome 2: Illustrate a basic knowledge of framework development principles as part of plant manipulation methods.

Specific Outcome 3: Demonstrate an intermediate understanding of flower and fruit manipulation principles.

Specific Outcome 4: Illustrate a basic knowledge pruning principles as vegetative plant manipulation methods appropriate to the crop.

Title: MONITOR THE ESTABLISHMENT OF A CROP

Specific Outcome 1: Select, use and care for the appropriate tools and equipment used in the planting of a specific crop.

Specific Outcome 2: Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.

Specific Outcome 3: Understand the impact of environmental conditions on the successful establishment of crops.

Specific Outcome 4: Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species.

ANIMAL PRODUCTION

Title: UNDERSTAND ANIMAL NUTRITION

Specific Outcome 1: Understand basic nutrient groups and functions and feed ingredients and groups.

Specific Outcome 2: Follow correct on-farm storage procedures to maintain feed quality
Follow correct on-farm storage procedures to maintain feed quality.

Specific Outcome 3: Apply stock control and records.

Specific Outcome 4: Follow feed processing procedures for on-farm use.

Specific Outcome 5: Select appropriate feed type and quantity from feed store.

Specific Outcome 6: Apply correct feeding practices.

Specific Outcome 7: Identify abnormal feeding behaviour.

Title: OBSERVE AND INSPECT ANIMAL HEALTH

Specific Outcome 1: Identify, inspect, and record abnormal behaviour.

Specific Outcome 2: Supervise the movement and restraint of animals.

Specific Outcome 3: Perform basic procedures under full supervision.

Specific Outcome 4: Apply basic principles of basic Bio-Security.

Title: RESPOND CORRECTLY TO CONTROL DEFENSIVE BEHAVIOUR IN ANIMALS

Specific Outcome 1: Illustrate possible responses to defensive behaviour.

Specific Outcome 2: Observe, illustrate and report on observations regarding defensive behaviour under supervision.

Specific Outcome 3: Explain correct reactions to minimise risk when working with animals.

Specific Outcome 4: List correct procedures when working with animals.

ELECTIVE

Title: EXPLAIN DAIRY PRODUCTION CLEANLINESS

Specific Outcome 1: Identify, mix and use suitable cleaning materials.

Specific Outcome 2: State the importance of rapid cooling of freshly drawn milk.

Specific Outcome 3: Demonstrate the ability to assess milk quality.

Specific Outcome 4: Demonstrate the ability to make use of different milking methods.

Specific Outcome 5: Demonstrate the ability to clean milking equipment effectively.

Title: EXPLAIN BASIC PIG HUSBANDRY PRACTICES

Specific Outcome 1: Identify and describe abnormalities occurring in the sows and boars in a piggery.

Specific Outcome 2: Identify and describe abnormalities occurring in piglets in a piggery.

Specific Outcome 3: Demonstrate the ability to weigh pigs of all ages, record data and report to appropriate supervisor.

Specific Outcome 4: Recognise and apply appropriate boar management practices in the piggery.

Title: PREPARE A SHEARING SHED FOR SHEARING

Specific Outcome 1: Describe the process to be followed to clean the shearing shed under supervision.

Specific Outcome 2: Recognise the different potential contaminant materials that can cause contamination problems in a shearing shed.

Specific Outcome 3: Organise and place shearing equipment correctly to ensure a streamlined shearing process.

Specific Outcome 4: Observe and report any structural deficiencies of the shed prior to the shearing process.

Title: HARVEST NATURAL FLORA

Specific Outcome 1: Demonstrate a basic understanding of local habitat ecology and management.

Specific Outcome 2: Read a map including pinpoint position on the ground and indicate harvest sites on the map.

Specific Outcome 3: Recognise target and non-target species and minimize the impact on non target species.

Specific Outcome 4: Implement appropriate harvesting techniques.

Specific Outcome 5: Demonstrate an understanding of the need to record and monitor harvesting practices and associated impacts.

Title: INTRODUCE ORGANIC CERTIFICATION AND INTERNAL CONTROL SYSTEMS

Specific Outcome 1: Be acquainted with the organic certification process.

Specific Outcome 2: Understand the functioning of an Internal Control System.

Title: INTERPRET AND ILLUSTRATE PERMACULTURE PRINCIPLES

Specific Outcome 1: Describe and explain the inter-relationship between different site elements and resources in a Permaculture design.

Specific Outcome 2: Monitor and support the use of biotic and abiotic resources in a Permaculture system.

Specific Outcome 3: Interpret ecological processes and cycles that can be used in a Permaculture system.

Specific Outcome 4: Describe and illustrate sustainable living practices that reflect Permaculture ethics.

Title: PARTICIPATE IN AGRI/ECOTOURISM PRACTICES AT BOTH MICRO AND MESO LEVELS TO TOURISTS

Specific Outcome 1: Put the farm/reserve into a meso-level context – that is to be able to integrate the farm within its immediate wider environment.

Specific Outcome 2: Identify and distinguish between the needs of tourists at micro and meso level.

Specific Outcome 3: Identify and locate tourism infrastructure, attractions and activities on the agri/eco-site and local (meso) environment and conduct a limited guided experience within these parameters.

Specific Outcome 4: Describe operational, organizational (social) and tourism practices on the Agri/Eco site and at meso level.

Title: STORE AND CONTROL AGROCHEMICAL PRODUCTS EFFECTIVELY AND RESPONSIBLY

Specific Outcome 1: Receive, store and issue agro-chemicals as advised.

Specific Outcome 2: Categorise and segregate agrochemical stock according to a set of requirements.

Specific Outcome 3: Implement appropriate safety and security measures.

Specific Outcome 4: Keep record of all stock.

Specific Outcome 5: Maintain cleanliness and hygiene of the storage facility and containers.

Specific Outcome 6: Deal appropriately and effectively with emergencies.

Specific Outcome 7: Ensure protective gear is stored in separate facility.



LEVEL 2.3

National Certificate In Plant Production, NQF Level 2

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 2

Credits: 120

Issue Date:

Review Date:

RATIONALE:

This qualification provides learners the opportunity to gain a qualification in Plant Production. The range of typical learners that will enter this qualification will vary and includes:

- Junior farm labourers who wish to progress to the level of Labourer within farming operations in Plant Production;
- Farm owners, in possession of an equivalent qualification at NQF 1;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- Possible candidates for promotion identified by the community as leaders.
- Learners may come from both genders.

The learner will engage in supervision and operational activities relevant to Plant Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Plant Production) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of plant production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of

competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in Plant Production whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Junior Personnel and elected candidates to progress towards a position of farm labourer (operator) with specific reference to Plant Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to participate as part of a working team, performing the agricultural processes as applicable to Plant production in an established and familiar context under general supervision.
- The Learner will be able to perform directed activities and take responsibility for the guiding others at lower level within a Plant Production context.
- Competency will be gained in any of the specialized sub-fields of Plant Production as specified under **Areas Of Specialization** (i.e. Vegetables, Fruit Production, Hydroponics, etc.)
- The learner will be able to take responsible decisions within a familiar range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Plant Production context.
- The Learner will be able to carry out familiar procedures in a limited environment and will be able to adhere to the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.
- Finally, Learners will be able to guide and direct others in terms of the implementation of smaller development projects within a Plant Production context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 1 and technical skills pertaining to agricultural activities equivalent to NQF 1.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into five categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Plant Production; and
- Animal Production (This component has been included to ensure that Learners at this level is exposed to a small component of animal production)

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply various communication skills within the agricultural environment.	<ul style="list-style-type: none"> • Oral reports are made or data is entered on pre-printed forms or screens. • Instructions (including challenging, inappropriate or incorrect instructions) are received, evaluated, clarified and acted on. • Workplace language, e.g. special purpose gestures and terminology to describe conditions, events, problems and actions is used. • Meetings (describe conditions, state own opinions) are participated in. • Information is collected from a variety of sources by recognising / reading / and/or using sensory cues. • Information (collected from instruments, gauges, outputs, incidents, operations) is

	<ul style="list-style-type: none"> organised, summarised and responded to. Conditions or states are determined by measuring (i.e. temperature, size, mass, colour).
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> Numbers are used to count and measure. A calculator is used to add, subtract, divide or multiply. Simple fractions and decimals are read and written. Simple ratios / percentages are applied as part of an instruction. Proper use is made of number sequence, i.e. batch numbers. Shapes are recognised. Money is calculated in Rands and cents (related to pay, deductions, price, etc.) Business related application are applied. Underpinning natural science principles are applied.
Collect and collate agricultural data and recognize and report on deviations	<ul style="list-style-type: none"> Collected agricultural data is collated and recorded correctly and accurately. Data is current and available when needed. Methods of collating data are explained. Health and safety measures are adhered to.
Explain basic functions of the environment by recognising patterns and processes, knowing local resources and basic sustainable agricultural processes using environmental indicators.	<ul style="list-style-type: none"> Basic environmental patterns and processes are related to sustainable use of agricultural land. Limitations of natural resources within the agricultural environment are recognized. Principles of sustainable agriculture are applied. Measures to prevent environmental degradation indicators are implemented.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply basic skills in record keeping, storage, contaminant management and associated legislation when controlling input and stock	<ul style="list-style-type: none"> Storage space is prepared to receive stock through cleaning and disinfecting, identification of appropriate space for storage and prevention of contamination (direct and cross contamination). Accurate records are kept by applying basic inventory taking, issuing and receiving of stock, identification of re-order level, reporting on stock levels and re-order prompting skills. Legal issues regarding contracts, penalties and obligations as pertaining to input

	<p>supply is explained.</p> <ul style="list-style-type: none"> • Safety regulations are applied.
Set goals and objectives related to production / conversion systems within an agricultural business.	<ul style="list-style-type: none"> • The concept of optimal usage of resources and optimisation of outputs are explained. • Tasks are appropriately scheduled. • Human resources in terms of skills required, number of labourers required to execute tasks are identified. • Goals and objectives related to systems within an agricultural business are set.
Apply knowledge of the marketing principles within agriculture for a specific product or service.	<ul style="list-style-type: none"> • The value of marketing research is explained. • The marketing mix (product, promotion, place, price and people) to a selected enterprise is applied. • Limited and shared responsibility for the marketing budget is taken. • The importance of effective distribution channels is explained.
Define and illustrate the gross margin statement, income statement, balance sheet and cash flow budget as well as the different cost aspects that one can find in a business.	<ul style="list-style-type: none"> • Direct and indirect costs, as well as fixed and variable costs are explained. • An income statement, the balance sheet and a cash-flow budget and statement are explained. • Complete a template, showing and calculating the above financial calculations.
Describe and understand the principles of Human Resources Management as applied	<ul style="list-style-type: none"> • Human resources philosophy, policies, rules, procedures and disciplinary environment applicable at farm level are explained. • Employment rights and responsibilities are explained. • Contracts and agreements are explained and interpreted.
Explain the principles and factors influencing agricultural enterprise selection and production.	<ul style="list-style-type: none"> • Natural resources, infrastructural requirements and stock for the selection of a sustainable enterprise are recognized and described. • Production cycles are recognised and described. • Harvesting and post-harvesting practices are described.

3. *Agricultural Practices*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Monitor and support the implementation of food safety and quality, production, environmental and social practices and awareness within the agricultural supply chain.	<ul style="list-style-type: none"> • Non-conformances and deviations on food safety, quality and the environment practices are distinguish and reported on. • Risk factors in food safety and quality are identified and explained. • The importance of a systematic filing system for records in accordance with GAP (good agricultural practices) and GMP (good manufacturing practices) principles are explained.
Demonstrate an understanding of the importance of water quality to agriculture and to monitor and maintain water quality using established procedures.	<ul style="list-style-type: none"> • Basic water quality tests and analyses are performed and monitored. • Maintenance tasks on certain operational technical systems related to water quality are performed. • The importance of water quality to agriculture is explained.
Apply basic practices to conserve the environment, including natural resources.	<ul style="list-style-type: none"> • The principles of natural resource management are explained. • Invasive alien plant species and noxious weeds are eradicated. • On farm fire breaks and/or fire guards are established. • Eroded areas and potential soil erosion are identified and control measures are suggested. • The impact of the local climate and micro-climate is explained. • Harmful and useful fauna and flora and their purpose and/or effect on the farm is explained.
Select basic equipment and implements that are appropriate to a combination of activities within a single agricultural process.	<ul style="list-style-type: none"> • Appropriate tools, implements and/or equipment, to use in a specified combination of activities within a single agricultural process are selected from a limited range. • Malfunctioning tools and equipment are identified and minor repairs are performed. • Safety measures in the use of agricultural equipment and implements are explained and adhered to.
Carry out basic physical farm layout tasks including construction of rainwater harvesting and soil conservation structures in a small farm or garden environment	<ul style="list-style-type: none"> • Veld, planted pasture and arable land are recognized. • Soil physical characteristics are related to land capability. • A swale (level contour bund), using a simple water level is constructed. • Swales and soil erosion prevention structures are maintained.

4. **Plant Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Identify the basic structures and functions of a plant.	<ul style="list-style-type: none"> • The basic parts which make up a seed, different root systems, different types of leaves, the flower as well as different stem types and its basic function are identified and described. • The different types and parts of a fruit are identified and described.
Soil is prepared according to the requirements of the crop.	<ul style="list-style-type: none"> • Appropriate quantity and quality of required soil nutrient applications are measured and prepared. • The soil is prepared according to the requirements of the agricultural crop. • Basic symptoms of nutritional deficiencies are identified and explained. • The properties of soil are explained.
Propagate plants.	<ul style="list-style-type: none"> • Environmental requirements for propagation in a specific agricultural production context are described. • Appropriate propagation methods are selected and applied safely. • Successful and unsuccessful propagation are distinguished and rectified. • Health and safety precautions are adhered to.
Recognize common insects, disease symptoms and weeds and apply basic control measures	<ul style="list-style-type: none"> • Common insects and types of weeds associated with the specific agricultural enterprise are identified and described. • Common symptoms of diseases are identified. • Old and new damage are distinguished and reported. • Monitoring of pests (scouting) and decrease/increase in pest levels after spraying or other control measures were applied, are explained.
Apply agrochemical products in a safe, effective and responsible manner with consideration to the environment.	<ul style="list-style-type: none"> • A pre-application plan is implemented. • Pest control products are mixed at the correct dose rate. • Pest control product is applied to produce/crop or farm animals. • Necessary safety and health precautions whilst applying pest control products are applied and emergencies are dealt with. • Post-application procedures are applied. • The process, problems and unusual occurrences are monitored and reported.

<p>Plant a range of crops and monitor the correct establish of crops as well as ensuring that planting is placed and spaced as required.</p>	<ul style="list-style-type: none"> • Appropriate tools and equipment used in the planting of a specific crop are selected, used and cared for. • Handling of planting material is monitored for successful establishment according to required procedures for a specific crop. • The impact of environmental conditions on the successful establishment of crops is explained. • The planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species are monitored.
<p>Manipulate plants by applying a narrow range of techniques</p>	<ul style="list-style-type: none"> • Various manipulation techniques are explained. • Framework development principles as part of plant manipulation methods are applied. • A range of flower and fruit manipulation methods are applied. • Pruning techniques as a vegetative plant manipulation method are applied. • Safety and hygiene measures are applied.
<p>Harvest crops.</p>	<ul style="list-style-type: none"> • Sampling for maturity indexing according to established and familiar procedures are done. • Health, hygiene and safety measures are applied during the harvesting procedure. • Requirements disposal of waste are adhered to.

NOTE: Assessment should be specific to the area of operation (i.e. Either large livestock, small livestock, pigs, poultry, etc.).

5. *Animal Production*

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Produce livestock whilst demonstrating an understanding of the environment and its relationship to sustainable livestock production	<ul style="list-style-type: none"> • Environmental factors influencing the veld are identified and described. • Environmental factors that influence livestock selection are analysed and described. • Supplementary feeding options for livestock production are identified and described. • Beneficial and harmful organisms that influence livestock production are identified and described. [Range: emphasis on locally important parasites and diseases] • The effects of agricultural management practices on the sustainability of the environment identified and assessed.

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Certificate II in Agriculture (General cross-sector qualification) in a plant production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the

Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is comparable to a NZNQF National Certificate in Agriculture (Level 2) in a plant production context. It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range

statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in agricultural plant production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as deciduous fruit, agronomic crop, sugar cane, vegetables, etc.) and/or system such as permaculture, organic production, hydroponic, etc.
- Technical competence in agricultural plant production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Plant Production include but are not limited to:

- Organic production,
- Hydroponic production,
- Perma-culture production,
- Agronomy,
- Horticulture,
- Natural resources harvesting.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Animal Production, NQF 2;
- National Certificate in Mixed Farming Systems, NQF 2.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 3, namely:

- National Certificate in Plant Production, NQF 3.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers.

The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Plant Production, NQF Level 2

FUNDAMENTAL

A minimum of 43 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT

8963	Access and use information from texts	2	5
8962	Maintain and adapt oral communication	2	5
8967	Use language and communication in occupational learning programs	2	5
8964	Write for a defined context	2	5
	total		20

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
14085	Apply basic knowledge of statistics in order to investigate life and work related problems	2	3
7479	Describe, represent and informally analyse shape and motion in 2- and 3- dimensional space	2	4
12444	Measure, estimate and calculate physical quantities and explore, describe and represent geometrical relationships in 2-dimensions in different life or workplace contexts	2	3
7469	Use mathematics to investigate and monitor the financial aspects of personal and community life	2	2
14086	Work with a wide range of patterns and basic functions and solve related problems	2	5
	total		24

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Monitor, Collect and Collate Agricultural Data	2	2
New	Recognise and Identify the Basic functions of the Ecological Environment	2	4

CORE

72 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Control inputs and stock in agribusiness	2	2
New	Define and understand production systems and production management.	2	2
New	Apply marketing principles in agriculture.	2	2

New	Illustrate and understand the basic lay-out of financial statements.	2	2
New	Explain principles of human resources management and practices in agriculture.	2	2
New	Identify and recognise factors influencing agricultural enterprise selection.	2	2

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Operate and support a food safety and quality management system in the agricultural supply chain.	2	2
New	Monitor water quality	2	3
New	Apply sustainable farming practices to conserve the ecological environment	2	5
New	Apply lay out principles for conservation and infrastructure.	2	5
New	Utilise and perform minor repairs and maintenance tasks on implements, equipment and infrastructure.	2	5
New	Apply crop protection and animal health products effectively and responsibly.	2	4

PLANT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Understand the structure and functions of a plant.	2	5
New	Understand basic soil fertility and plant nutrition	2	5
New	Demonstrate an understanding of plant propagation.	2	3
New	Operate and maintain specific irrigation systems.	2	3
New	Apply plant manipulation methods.	2	4
New	Control pests and diseases and weeds on crops effectively and responsibly.	2	4
New	Harvest agricultural crops: Procedures.	2	4
New	Monitor the establishment of a crop.	2	4
13356	Assess the influence of the environment on sustainable livestock production.	1	4

ELECTIVE

A minimum of 5 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELD OF SPECIALISATION: SUSTAINABLE HARVESTING OF NATURAL RESOURCES			
NLRD	TITLE	LEVEL	CREDIT
New	Harvest natural flora	2	4

FIELD OF SPECIALISATION: ORGANIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Introduce organic certification and internal control systems.	2	2

FIELD OF SPECIALISATION: PERMA-CULTURE PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Interpret and illustrate permaculture principles	2	5

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Participate in agri/eco-tourism practices at both micro and meso levels to tourists	2	4

FIELD OF SPECIALISATION: AGRO-CHEMICALS			
NLRD	TITLE	LEVEL	CREDIT
New	Store and control agrochemical products effectively and responsibly.	2	4

FIELD OF SPECIALISATION: HYDROPONIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Perform routine operations and identify basic problems in hydroponic systems.	2	3

National Certificate In Plant Production, NQF Level 2

Unit Standards NQF 2

AGRICULTURAL SPECIFIC FUNDAMENTAL

Title: MONITOR, COLLECT AND COLLATE AGRICULTURAL DATA

Specific Outcome 1: Identify and collect the required data.

Specific Outcome 2: Collate the collected data.

Specific Outcome 3: Record collated data and create reports in the required format.

Specific Outcome 4: Apply health and safety measures applicable to the collection method and equipment used.

Title: RECOGNISE AND IDENTIFY THE BASIC FUNCTIONS OF THE ECOLOGICAL ENVIRONMENT

Specific Outcome 1: Recognise patterns and processes of the environment and how they relate to the sustainable use of agricultural land.

Specific Outcome 2: Demonstrate an understanding of natural resources and recognise their limitations within the agricultural environment.

Specific Outcome 3: Demonstrate an understanding of sustainable agricultural principles.

Specific Outcome 4: Recognise environmental degradation indicators.

AGRICULTURAL BUSINESS

Title: CONTROL INPUTS AND STOCK IN AGRIBUSINESS

Specific Outcome 1: Plan to receive inputs into a store at the appropriate time.

Specific Outcome 2: Keep accurate records and manage stock.

Specific Outcome 3: Identify legislation regarding different inputs.

Specific Outcome 4: Observe safety regulations.

Title: DEFINE AND UNDERSTAND PRODUCTION SYSTEMS AND PRODUCTION MANAGEMENT

Specific Outcome 1: Understand production systems in an agri-business environment.

Specific Outcome 2: Understand and define the basic managerial tasks.

Specific Outcome 3: Understand and define the additional production management tasks.

Specific Outcome 4: Understand the process of setting goals and objectives related to systems within an agricultural business.

Title: APPLY MARKETING PRINCIPLES IN AGRICULTURE

Specific Outcome 1: Understand the value of marketing research.

Specific Outcome 2: Apply the marketing mix (product, promotion, place, price and people) to a selected enterprise.

Specific Outcome 3: Take limited and shared responsibility for the marketing budget.

Specific Outcome 4: Have an awareness and understanding of the importance of effective distribution channels for a specific agricultural commodity.

Title: ILLUSTRATE AND UNDERSTAND THE BASIC LAYOUT OF FINANCIAL STATEMENTS

Specific Outcome 1: Define and understand the gross margin statement and distinguish between direct and indirect costs, as well as fixed and variable costs.

Specific Outcome 2: Define and understand the income statement.

Specific Outcome 3: Define and understand the balance sheet.

Specific Outcome 4: Define and understand the structure of a cash-flow budget and statement.

Specific Outcome 5: Demonstrate an understanding of the legal responsibilities of an agri-business owner.

**Title: EXPLAIN PRINCIPLES OF HUMAN RESOURCE
MANAGEMENT AND PRACTICES IN AGRICULTURE**

Specific Outcome 1: Demonstrate an awareness and basic understanding of the farm's Human Resources policy with specific reference to rules and procedures.

Specific Outcome 2: Explain and identify labour legislation applicable at the work situation.

Specific Outcome 3: Explain and interpret contracts and agreements applicable at the workplace.

Specific Outcome 4: Explain and adhere to health and safety rules and practices.

**Title: IDENTIFY AND RECOGNISE FACTORS INFLUENCING
AGRICULTURAL ENTERPRISE SELECTION**

Specific Outcome 1: Name and recognise natural resources required for the selection of the relevant enterprise.

Specific Outcome 2: Describe and recognise infrastructural requirements for the selection of the relevant enterprise.

Specific Outcome 3: Identify and recognise stock required for the relevant enterprise.

Specific Outcome 4: Recognise and describe production cycles within the relevant enterprise.

Specific Outcome 5: Identify and recognise harvest practices within the relevant enterprise.

Specific Outcome 6: Describe and recognise post harvest practices within relevant enterprise.

GENERIC AGRICULTURAL PRACTICES

**Title: OPERATE AND SUPPORT A FOOD SAFETY AND QUALITY
MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY
CHAIN**

Specific Outcome 1: Apply basic food safety practices.

Specific Outcome 2: Illustrate a basic knowledge to distinguish and to report non-conformances and deviations on food safety, quality and the environment in the agricultural supply chain.

Specific Outcome 3: Understanding basic health and social issues in the agricultural environment.

Specific Outcome 4: Demonstrate an understanding of risk factors in food safety and quality related to the agricultural supply chain.

Specific Outcome 5: Demonstrate basic understanding of record keeping activities on the farm.

Title: MONITOR WATER QUALITY

Specific Outcome 1: Demonstrate an understanding of water quality management.

Specific Outcome 2: Demonstrate an understanding of the importance of water to agriculture.

Specific Outcome 3: Demonstrate an ability to monitor and perform basic water quality tests and analyses.

Specific Outcome 4: Demonstrate an ability to perform and understand maintenance tasks on certain operational technical systems related to water quality.

Title: APPLY SUSTAINABLE FARMING PRACTICES TO CONSERVE THE ECOLOGICAL ENVIRONMENT

Specific Outcome 1: Demonstrate an understanding of natural resources and recognise how sound management contributes towards sustainable farming systems.

Specific Outcome 2: Eradicate alien plant species and noxious weeds.

Specific Outcome 3: Prevent the spread of veld fires by making firebreaks and/or fireguards on the farm.

Specific Outcome 4: Recognise harmful and useful fauna and flora and their purpose and/or effect on the farm.

Specific Outcome 5: Recognise eroded areas and potential soil erosion and carry out minor control measures.

Title: **APPLY LAYOUT PRINCIPLES FOR CONSERVATION AND INFRASTRUCTURE**

Specific Outcome 1: Recognise veld and soil types, animal and human behaviour and demarcate appropriate areas for sustainable resource use in the layout of the farm.

Specific Outcome 2: Construct the infrastructure and relate the physical and chemical characteristics of soil, landscape and local climate and land capability, and demarcate areas for sustainable use.

Specific Outcome 3: Understand the design of farm layout according to agricultural, water catchment and environmental conservation areas.

Specific Outcome 4: Design and construct basic infrastructure using simple tools and equipment.

Specific Outcome 5: Maintain, report faults, and where appropriate repair them under supervision.

Title: **UTILISE AND PERFORM MINOR REPAIR AND MAINTENANCE TASKS ON IMPLEMENTS, EQUIPMENT AND INFRASTRUCTURE**

Specific Outcome 1: Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.

Specific Outcome 2: Identify malfunctioning tools and equipment and perform minor repairs related to the use of equipment in an agricultural environment.

Specific Outcome 3: Maintain and store tools, implements, equipment and/or machinery according to specifications.

Specific Outcome 4: Adhere to and understand the necessary safety measures in the use of agricultural equipment and implements.

Title: APPLY CROP PROTECTION AND ANIMAL HEALTH PRODUCTS EFFECTIVELY AND RESPONSIBLY

Specific Outcome 1: Implement a pre-application plan.

Specific Outcome 2: Mix correct pest control products at correct dose rate.

Specific Outcome 3: Apply pest control product to produce/crop or farm animals.

Specific Outcome 4: Take the necessary safety and health precautions whilst applying pest control products.

Specific Outcome 5: Apply post-application procedures.

Specific Outcome 6: Monitor and report on the process, problems and unusual occurrences to the supervisor.

Specific Outcome 7: Deal appropriately and effectively with emergencies.

PLANT PRODUCTION

Title: UNDERSTAND THE BASIC STRUCTURE AND FUNCTIONS OF A PLANT

Specific Outcome 1: Identify the basic parts that make up a seed and its basic function.

Specific Outcome 2: Demonstrate an understanding of the different root systems and their basic function.

Specific Outcome 3: Demonstrate an understanding of different stem types.

Specific Outcome 4: Identify the different types of leaves and the role leaves play in food production for the plant.

Specific Outcome 5: Identify the different parts of the flower and their basic functions.

Specific Outcome 6: Demonstrate an understanding of the different types and parts of a fruit.

Title: UNDERSTAND BASIC SOIL FERTILITY AND PLANT NUTRITION

Specific Outcome 1: Accurately prepare and measure the appropriate quantity and quality of required soil nutrient applications.

Specific Outcome 2: Take an appropriate sample for nutrient analysis.

Specific Outcome 3: Understand the properties of soil and soil composition.

Specific Outcome 4: Identify and interpret the basic symptoms of nutritional deficiencies in crops.

Title: DEMONSTRATE AN UNDERSTANDING OF PLANT PROPAGATION

Specific Outcome 1: Recognise the environmental requirements for propagation in a specific agricultural production context.

Specific Outcome 2: Identify appropriate propagation methods and applicable tools for specific agricultural production systems.

Specific Outcome 3: Distinguish between successful and unsuccessful propagation under specific agricultural production context.

Title: OPERATE AND MAINTAIN SPECIFIC IRRIGATION SYSTEMS

Specific Outcome 1: Perform pre-start up inspection applicable to the relevant irrigation system.

Specific Outcome 2: Perform start-up and shutdown procedures applicable to the relevant irrigation system.

Specific Outcome 3: Irrigate crop according to given guidelines.

Specific Outcome 4: Care and maintain equipment and tools used during irrigation.

Title: APPLY PLANT MANIPULATION METHODS

Specific Outcome 1: Demonstrate an understanding of the selection and use of appropriate tools and equipment for a pre-determined manipulation method.

Specific Outcome 2: Illustrate a basic knowledge of framework development principles as part of plant manipulation methods.

Specific Outcome 3: Demonstrate an intermediate understanding of flower and fruit manipulation principles.

Specific Outcome 4: Illustrate a basic knowledge pruning principles as vegetative plant manipulation methods appropriate to the crop.

Title: **HARVEST AGRICULTURAL CROPS: PROCEDURES**

Specific Outcome 1: Select and use appropriate tools / equipment for pre-determined harvesting method.

Specific Outcome 2: Carry out sampling for maturity indexing according to established and familiar procedures.

Specific Outcome 3: Harvest crops.

Specific Outcome 4: Harvest crops considering the necessary health, hygiene and safety during the procedure.

Specific Outcome 5: Ensure the disposal of waste requirements are adhered to.

Specific Outcome 6: Care for and maintain equipment used.

Title: **MONITOR THE ESTABLISHMENT OF A CROP**

Specific Outcome 1: Select, use and care for the appropriate tools and equipment used in the planting of a specific crop.

Specific Outcome 2: Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.

Specific Outcome 3: Understand the impact of environmental conditions on the successful establishment of crops.

Specific Outcome 4: Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species.

ELECTIVE

Title: HARVEST NATURAL FLORA

Specific Outcome 1: Demonstrate a basic understanding of local habitat ecology and management.

Specific Outcome 2: Read a map including pinpoint position on the ground and indicate harvest sites on the map.

Specific Outcome 3: Recognise target and non-target species and minimize the impact on non target species.

Specific Outcome 4: Implement appropriate harvesting techniques.

Specific Outcome 5: Demonstrate an understanding of the need to record and monitor harvesting practices and associated impacts.

Title: INTRODUCE ORGANIC CERTIFICATION AND INTERNAL CONTROL SYSTEMS

Specific Outcome 1: Be acquainted with the organic certification process.

Specific Outcome 2: Understand the functioning of an Internal Control System.

Title: INTERPRET AND ILLUSTRATE PERMACULTURE PRINCIPLES

Specific Outcome 1: Describe and explain the inter-relationship between different site elements and resources in a Permaculture design.

Specific Outcome 2: Monitor and support the use of biotic and abiotic resources in a Permaculture system.

Specific Outcome 3: Interpret ecological processes and cycles that can be used in a Permaculture system.

Specific Outcome 4: Describe and illustrate sustainable living practices that reflect Permaculture ethics.

Title: PARTICIPATE IN AGRI/ECOTOURISM PRACTICES AT BOTH MICRO AND MESO LEVELS TO TOURISTS

Specific Outcome 1: Put the farm/reserve into a meso-level context – that is to be able to integrate the farm within its immediate wider environment.

Specific Outcome 2: Identify and distinguish between the needs of tourists at micro and meso level.

Specific Outcome 3: Identify and locate tourism infrastructure, attractions and activities on the agri/eco-site and local (meso) environment and conduct a limited guided experience within these parameters.

Specific Outcome 4: Describe operational, organizational (social) and tourism practices on the Agri/Eco site and at meso level.

Title: STORE AND CONTROL AGROCHEMICAL PRODUCTS EFFECTIVELY AND RESPONSIBLY

Specific Outcome 1: Receive, store and issue agro-chemicals as advised.

Specific Outcome 2: Categorise and segregate agrochemical stock according to a set of requirements.

Specific Outcome 3: Implement appropriate safety and security measures.

Specific Outcome 4: Keep record of all stock.

Specific Outcome 5: Maintain cleanliness and hygiene of the storage facility and containers.

Specific Outcome 6: Deal appropriately and effectively with emergencies.

Specific Outcome 7: Ensure protective gear is stored in separate facility.

Title: PERFORM ROUTINE OPERATIONS AND IDENTIFY BASIC PROBLEMS IN HYDROPONIC SYSTEMS

Specific Outcome 1: Identify various growing media.

Specific Outcome 2: Manipulate plants as per instruction in the hydroponic production system.

Specific Outcome 3: Identify and report basic problems in the production system.

Specific Outcome 4: Basically understand hydroponics.



LEVEL 3.1

National Certificate In Animal Production, NQF Level 3

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 3

Credits: 120

Issue Date:

Review Date:

RATIONALE:

This qualification provides learners the opportunity to gain a qualification in Animal Production. The range of typical learners that will enter this qualification will vary and includes:

- Farm operators who wish to progress to the level of supervisor within farming operations in Animal Husbandry;
- Farm owners, in possession of an equivalent qualification at NQF 2;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- Possible candidates for promotion identified by the community as leaders.
- Learners may come from both genders.

The learner will engage in supervision and operational activities relevant to Animal Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Animal Husbandry) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of animal production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of

competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in Animal Husbandry whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Farm Operators to progress towards a Supervisory position with specific reference to Animal Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to supervise and lead a working team, performing the agricultural processes as applicable to animal production in a range of Animal Production contexts under general supervision.
- The Learner will be able to take responsibility for her/his own actions and also take responsibility for supervising others at lower levels within an Animal Production context.
- Competency will be gained in any of the specialized sub-fields of Animal Production as specified under **Areas Of Specialization** (i.e. Small stock, Large Stock, Dairy Production, Aqua Culture, etc.)
- The learner will be able to take responsible decisions within a wide range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Animal Production context.
- The Learner will be able to oversee the implementation of a wide range of procedures and will be able to ensure the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.
- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.

- Finally, Learners will be able to guide and direct others in terms of the implementation and control of development projects within an Animal Production context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 2 and technical skills pertaining to agricultural activities equivalent to NQF 2.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into four categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Animal Production

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply various communication skills within the agricultural environment.	<ul style="list-style-type: none"> • Oral reports are made or data is entered on pre-printed forms or screens. • Instructions (including challenging, inappropriate or incorrect instructions) are received, evaluated, clarified and acted on. • Workplace language, e.g. special purpose gestures and terminology to describe conditions, events, problems and actions is used. • Meetings (describe conditions, state own opinions) are participated in. • Information is collected from a variety of sources by recognising / reading / and/or using sensory cues. • Information (collected from instruments, gauges, outputs, incidents, operations) is organised, summarised and responded to. • Conditions or states are determined by measuring (i.e. temperature, size, mass, colour).
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> • Numbers are used to count and measure. • A calculator is used to add, subtract, divide or multiply. • Simple fractions and decimals are read and

	<p>written.</p> <ul style="list-style-type: none"> • Simple rations / percentages are applied as part of an instruction. • Proper use is made of number sequence, i.e. batch numbers. • Shapes are recognised. • Money is calculated in Rands and cents (related to pay, deductions, price, etc.) • Business related application are applied. • Underpinning natural science principles are applied.
Recognise, interpret and report on a range of deviations during the data collection process.	<ul style="list-style-type: none"> • Data is collected correctly • Tools and equipment required for data collection is utilised correctly. • Data reports are submitted
Incorporate basic concepts of sustainable farming systems into practical farm activities	<ul style="list-style-type: none"> • A sustainable farming system is defined and described. • The nature of a system is explained. • The balance of sustainability, productivity and conservation of resources is explained. • The sustainability of a whole farming system is monitored and re-evaluated.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Maintain stores and agro-inputs in stores.	<ul style="list-style-type: none"> • Orders are received. • Records are updated. • Stock levels are maintained. • Stock is issued. • Suppliers are evaluated. • Safety regulations are observed.
Participate in the production planning process on a day-to-day basis.	<ul style="list-style-type: none"> • Production schedules are planned. • Production choices are explained. • The links between scheduling and financial planning is explained. • Different scheduling techniques are explained.
Apply the components of the marketing cycle in an alternative agricultural marketing environment.	<ul style="list-style-type: none"> • The managerial vision of the agribusiness is explained. • Alternative marketing environments are described. • The variables of the marketing cycle are explained. • Characteristics and critical success factors of marketing is explained. • The supply chain is modified according to the requirements of alternative markets.
Determine viability of agri-business.	<ul style="list-style-type: none"> • Sources of income are identified and explained.

	<ul style="list-style-type: none"> • Costs are identified and explained. • Break-even budgets are developed. • Whole farm budgets are developed. • Financial outcomes are predicted.
Assist with the management of human resources in an agricultural environment.	<ul style="list-style-type: none"> • HR rules, policies and procedures are applied • The role of stakeholders is explained. • Contracts are interpreted and prepared. • Employment relations are explained in an agricultural context.
Interpret the factors influencing agricultural enterprises, enterprise selection, production, and apply such interpretation in agricultural planning.	<ul style="list-style-type: none"> • Requirements re natural resources and infrastructure for the selection of the relevant enterprise is recognized and interpreted. • Infrastructure for the selection of the enterprise is categorized. • Appropriate crops and/or animals for the relevant enterprise are determined. • The production procedures (including harvesting and post harvesting activities) are interpreted.

3. *Agricultural Practices*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Monitor and supervise the implementation of food safety and quality, production, environmental and social practices, and awareness within the agricultural supply chain.	<ul style="list-style-type: none"> • An understanding of the concept of traceability in the agricultural supply chain is demonstrated. • Non-conformances with respect to food safety, production, environmental, and social practices in the agricultural environment are reported. • Internal audits in the agricultural environment are explained. • Food safety and quality principles as related to the agricultural supply chain are applied
Apply the principles of water quality management and adjust systems to ensure appropriate levels of quality.	<ul style="list-style-type: none"> • Abnormalities in water quality are recorded and interpreted. • Environmental aspects of water quality management are explained. • Corrective actions are taken to ensure the appropriate quality. • Quality assurance systems are implemented and maintained.
Apply a routine maintenance and servicing plan.	<ul style="list-style-type: none"> • Scheduling of routine maintenance is explained. • A service plan is implemented. • Maintenance procedures are applied. • Tools, equipment and machinery are maintained.
Monitor practices to conserve the environment, including	<ul style="list-style-type: none"> • The elements of an ecosystem and a food chain are explained.

natural resources whereby ensuring optimal utilization of national resources on the farm	<ul style="list-style-type: none"> • The occurrence of different types of fauna and flora and the sustainable utilisation thereof is monitored. • Soil maintenance and water management practices are monitored. • The energy cycle is explained. • A 2 dimensional map of the direct vicinity is interpreted.
Decide on appropriate land capability options for a given field.	<ul style="list-style-type: none"> • Soil survey results and physical observation are interpreted and used in decision-making. • A land capability analysis to serve as the basis for appropriate enterprise selection for the farm is prepared.

4. **Animal Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Evaluate animals with respect to their internal and external anatomical systems and physiology of animals.	<ul style="list-style-type: none"> • Structures, composition, physical and biological components are described. • Interrelated activities of anatomical systems are described. • Symptomatic variations and abnormalities are identified and described. • Probable causes of abnormalities and deviations are described.
Describe the nature, function and utilisation of animal feeds and nutrients	<ul style="list-style-type: none"> • The nutritional role of nutrients are described. • Feed ingredients are identified. • Animal stimulation and maintenance are described. • The mixing of feed is demonstrated. • The application of security to animal feed is described. • Quality control of animal feed is described. • Corrective measures to abnormal feeding behaviour is described.
Apply advanced animal breeding practices.	<ul style="list-style-type: none"> • The signs of birth and associated problems are described. • Different breeding methods are explained • Basic reproductive cycles of farm animals are described • Factors affecting reproductive cycles are explained.
Identify and describe the harvesting of animal products.	<ul style="list-style-type: none"> • Animal products suitable for harvesting are evaluated. • The infrastructure required for the harvesting of animal products is described. • Animal harvesting systems are maintained. • Animal harvesting systems are evaluated and alternatives suggested.

	<ul style="list-style-type: none"> • The processing and value adding process is described.
Demonstrate the implementation of minor clinical procedures under restraint.	<ul style="list-style-type: none"> • The restraint of animals is demonstrated. • Basic physical examinations of animals are demonstrated. • The treatment of minor ailments is explained. • The vaccination of animals is demonstrated. • The basic principles of bio-security are explained. • The components of pre-planned programmes are explained. • Basic animal welfare practices are explained.

NOTE: Assessment should be specific to the area of operation (i.e. Either large livestock, small livestock, pigs, poultry, etc.).

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Certificate III in Agriculture (General cross-sector qualification) in an animal production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is comparable to a NZNQF National Certificate in Agriculture (Level 3) in an animal production context. It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in animal production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as abalone, fish, ostriches, etc.) and/or system such as permaculture, organic production, etc.
- Technical competence in animal production practices at, at least one NQF level above the

assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Animal Husbandry include but are not limited to:

- Small stock production,
- Large stock production,
- Dairy production,
- Pig production,
- Poultry production,
- Game,
- Aqua / mari culture,
- Commercial insects
- Animal fibres harvesting,
- Bee keeping,
- Natural resources harvesting
- Organic production,
- Perma-culture production,
- Eco/Agri Tourism,
- Agro Chemicals,
- Horse Breeding,
- Etc.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to al appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Plant Production, NQF 3;

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 4, namely:

- National Certificate in Animal Production, NQF 4.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers. The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Animal Production, NQF Level 3

FUNDAMENTAL

A minimum of 48 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
8968	Accommodate audience and context needs in oral communication	3	5
8969	Interpret and use information from texts	3	5
8973	Use language and communication in occupational learning programmes	3	5
8970	Write texts for a range of communicative contexts	3	5
	total		20

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
7454	Collect and use data to establish statistical and probability models and solve related problems	3	5
14106	Demonstrate understanding of real and imaginary numbers and real number systems	3	2
7458	Find the derivatives of a range of simple functions and apply these to problems involving tangents to curves and rates of change	3	2
7455	Identify and work with simple forms of complex numbers	3	1
14108	Measure, estimate, calculate physical quantities, explore, describe and represent, interpret, justify geometrical relationships in 2 & 3-dimensional space relevant to the life or workplace of the community	3	4
7456	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	3	2
	total		16

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Supervise the Collection of Agricultural Data	3	5
New	Incorporate Basic Concepts of Sustainable Farming Systems Into Practical Farm Activities	3	7

CORE

65 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Explain store inputs, categories, labelling and storage methods	3	3
New	Explain the planning and scheduling of tasks in a production environment.	3	3
New	Explain application of marketing principles within an alternative and dynamic agricultural marketing environment.	3	3
New	Explain costing and the viability of an agribusiness.	3	3
New	Explain human resource policies and procedures	3	3
New	Interpret factors influencing agricultural enterprises and plan accordingly.	3	3

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Monitor and supervise a food safety and quality management system in the agricultural supply chain.	3	3
New	Maintain water quality parameters	3	2
New	Monitor natural resource management practices.	3	4
New	Assist in farm planning and layout for conservation and rainwater harvesting.	3	3
New	Apply routine maintenance and servicing plans and procedures.	3	3
New	Apply crop protection and animal health products effectively and responsibly.	2	4

ANIMAL PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Explain animal anatomy and physiology	3	5

New	Explain elementary animal nutrition	3	6
New	Apply advanced breeding practices for farm animals.	3	4
New	Explain the harvesting of animal products.	3	5
New	Explain the prevention and treatment of animal diseases.	3	5
New	Minimise risk in animal management.	3	3

ELECTIVE

A minimum of 7 credits should be achieved in Elective, depending on the context of application or on the combination of the unit standards:

FIELDS OF SPECIALISATION: SMALL/LARGE STOCK PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New SETASA	Understand feedlot environment.	3	10
New SETASA	Determine livestock mass.	3	2
New SETASA	Demonstrate an understanding of feedlot feed ingredient and blends.	3	6
New SETASA	Control feedbunker and water trough quality.	3	6
10976	Convey livestock	2	8
New	Apply basic artificial insemination practices	3	5
8347	Control problem animals	2	4

FIELDS OF SPECIALISATION: DAIRY PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Explain dairy production.	3	6

FIELDS OF SPECIALISATION: PIG PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Apply pig husbandry practices.	3	5

FIELDS OF SPECIALISATION: ANIMAL FIBRE HARVESTING			
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NLRD	TITLE	LEVEL	CREDIT
New	Apply blade shearing skills and prepare blade shearing equipment.	3	8
New	Apply machine shearing skills and prepare shearing equipment	3	8
New	Organise the shearing shed activities	3	4

FIELDS OF SPECIALISATION: BEE KEEPING			
NLRD	TITLE	LEVEL	CREDIT
New	Manage sites for bee keeping.	3	2

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Communicate agri/eco tourism principles and concepts effectively and adapt to needs.	3	5

**National Certificate In Animal Production, NQF Level 3
Unit Standards, NQF 3**

AGRICULTURAL SPECIFIC FUNDAMENTAL

Title: SUPERVISE THE COLLECTION OF AGRICULTURAL DATA

Specific Outcome 1: Ensure that data is collected correctly.

Specific Outcome 2: Ensure that the equipment and tools required for data collection are on hand.

Specific Outcome 3: Ensure that collated data and reports are submitted as required.

Specific Outcome 4: Ensure that the required health and safety regulations are followed.

Title: INCORPORATE BASIC CONCEPTS OF SUSTAINABLE FARMING SYSTEMS INTO PRACTICAL FARM ACTIVITIES

Specific Outcome 1: Identify the basic components of sustainable farming systems.

Specific Outcome 2: Demonstrate an understanding of a system and the nature of a system.

Specific Outcome 3: Demonstrate an understanding of the balance of sustainability, productivity and conservation of resources.

Specific Outcome 4: Define and describe a sustainable farming system.

Specific Outcome 5: Monitor and re-evaluate sustainability of a whole farming system.

AGRICULTURAL BUSINESS

Title: EXPLAIN STORE INPUTS CATEGORIES, LABELING AND STORAGE METHODS

Specific Outcome 1: Receive orders of agro-inputs appropriately.

Specific Outcome 2: Update records correctly.

Specific Outcome 3: Maintain levels of agro-inputs within acceptable limits and complete requisition forms correctly.

Specific Outcome 4: Explain the issuing of stock (agro-inputs) correctly.

Specific Outcome 5: Observe legislation regarding handling and storage of agro-inputs to avoid penalties.

Specific Outcome 6: Schedule the flow of agro-inputs to avoid deterioration and wastage.

Specific Outcome 7: Evaluate alternative suppliers for efficiency, product quality and price.

Specific Outcome 8: Inspect, issue and check returned equipment.

Title: EXPLAIN THE PLANNING AND SCHEDULING OF TASKS IN A PRODUCTION ENVIRONMENT

Specific Outcome 1: Explain production planning and the different levels of planning that can be used in production planning activities.

Specific Outcome 2: Demonstrate an understanding of scheduling.

Specific Outcome 3: Demonstrate production optimisation techniques.

Specific Outcome 4: Demonstrate the ability to make meaningful comments on the planning and scheduling process

Title: **EXPLAIN APPLICATION OF MARKETING PRINCIPLES WITHIN AN ALTERNATIVE AND DYNAMIC AGRICULTURAL MARKETING ENVIRONMENT**

Specific Outcome 1: Demonstrate an awareness of the managerial vision of the agribusiness with specific relation to the dynamic environment in which it operates.

Specific Outcome 2: Monitor the alternative marketing environment and determine variables in marketing cycle for a specific agricultural commodity.

Specific Outcome 3: Distinguish the characteristics and critical success factors of alternative markets for a specific agricultural commodity.

Specific Outcome 4: Modify the marketing supply chain cycle for alternative markets of a specific agricultural commodity.

Title: **EXPLAIN COSTING AND THE VIABILITY OF AN AGRI-BUSINESS**

Specific Outcome 1: Identify and budget for the various sources of income generation available to the agri-business.

Specific Outcome 2: Identify and budget for the various costs impacting on the agri-business.

Specific Outcome 3: Demonstrate an understanding of the utilization of break-even budgets to calculate break-even points.

Specific Outcome 4: Demonstrate the utilisation of whole farm budgets to predict and focus financial outcomes of an agri-business.

Title: EXPLAIN HUMAN RESOURCE POLICIES AND PROCEDURES

Specific Outcome 1: Demonstrate an understanding of Human Resource rules, policies and procedures.

Specific Outcome 2: Demonstrate an understanding of the various stakeholders and their roles within an organisation.

Specific Outcome 3: Demonstrate involvement with the preparation and interpretation of contracts and agreements applicable at the work place.

Specific Outcome 4: Demonstrate an understanding of employment relations in an organisation.

Title: INTERPRET FACTORS INFLUENCING AGRICULTURAL ENTERPRISES AND PLAN ACCORDINGLY

Specific Outcome 1: Interpret and categorise natural resources required for the selection of the relevant enterprise.

Specific Outcome 2: Categorise and maintain infrastructure for the selection of the enterprise.

Specific Outcome 3: Determine stock required for the relevant enterprise.

Specific Outcome 4: Define and interpret production procedures within the relevant enterprise.

Specific Outcome 5: Determine and apply harvest procedures within the relevant enterprise.

Specific Outcome 6: Compare and interpret post harvest procedures within relevant enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: **MONITOR AND SUPERVISE A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN**

Specific Outcome 1: Demonstrate an understanding of the concept of traceability in the agricultural supply chain.

Specific Outcome 2: Perform basic record keeping activities on the farm.

Specific Outcome 3: Report non-conformances with respect to food safety, production, environmental, and social practices in the agricultural environment.

Specific Outcome 4: Understanding basic health, social and environmental issues which relate to the agricultural environment.

Specific Outcome 5: Demonstrate a basic understanding of internal audits in the agricultural environment.

Specific Outcome 6: Operate food safety and quality principles as related to the agricultural supply chain.

Title: **MAINTAIN WATER QUALITY PARAMETERS**

Specific Outcome 1: Read, record and interpret certain parameters and abnormalities in water quality.

Specific Outcome 2: Demonstrate an understanding of critical control points in water quality management.

Specific Outcome 3: Enable corrective action to occur on certain operational technical that control specific physical and chemical factors in water and relate it to a specific organism's water quality requirement.

Specific Outcome 4: Ensure that quality assurance systems related to water quality are in place and maintained.

Title: MONITOR NATURAL RESOURCE MANAGEMENT PRACTICES

Specific Outcome 1: Know and monitor the occurrence of key types of fauna and flora and their environmental requirements.

Specific Outcome 2: Demonstrate an understanding of the elements of an ecosystem and a food chain.

Specific Outcome 3: Identify the key fauna and flora types and their sustainable management.

Specific Outcome 4: Identify the different soil categories, the utilisation and maintenance thereof.

Specific Outcome 5: Monitor and implement principles of water management.

Specific Outcome 6: Demonstrate a basic understanding of the energy cycle.

Specific Outcome 7: Read a two dimensional map of the direct vicinity.

Title: ASSIST IN FARM PLANNING AND LAYOUT FOR CONSERVATION AND RAINWATER HARVESTING

Specific Outcome 1: Assist in a land capability analysis to serve as the basis for development of an area or an enterprise selection for the farm.

Specific Outcome 2: Design and construct prevention structures and infrastructure necessary for area, or the farm enterprise, applying sustainable resource use principles.

Specific Outcome 3: Design and construct basic infrastructure using simple tools and equipment.

Specific Outcome 4: Monitor and implement principles of natural resource management and infrastructure maintenance.

Specific Outcome 5: Maintain, report faults, and where appropriate repair them under supervision.

**Title: APPLY ROUTINE MAINTENANCE ANDSERVICING
PLANS AND PROCEDURES**

Specific Outcome 1: Understand and schedule a routine maintenance plan.

Specific Outcome 2: Implement a service maintenance plan.

Specific Outcome 3: Apply maintenance service procedures according to specified policies.

Specific Outcome 4: Adjust and maintain the good working order of tools, equipment and machinery.

ANIMAL PRODUCTION

Title: EXPLAIN ANIMAL ANATOMY AND PHYSIOLOGY

Specific Outcome 1: Identify and understand the structures, composition and physical and biological components of the various anatomical systems.

Specific Outcome 2: Identify the interrelated activities pertaining to the various anatomical systems.

Specific Outcome 3: Identify, understand and evaluate symptomatic variations and abnormalities within living animals, in the various anatomical systems.

Specific Outcome 4: Identify, understand and evaluate and the probable causes of abnormalities and deviations in the anatomy and physiology of animals.

Title: EXPLAIN ELEMENTARY ANIMAL NUTRITION

Specific Outcome 1: Demonstrate an understanding of the nutritional role of nutrient components.

Specific Outcome 2: Identify specific feed ingredients.

Specific Outcome 3: Demonstrate an understanding of the basic concepts of animal stimulation, maintenance and production in farm animals and how to apply feed to achieve this.

Specific Outcome 4: Demonstrate the ability to prepare, produce and mix feed ingredients.

Specific Outcome 5: Demonstrate an understanding of feed security.

Specific Outcome 6: Identify and apply sensory indicators of quality in feed.

Specific Outcome 7: Demonstrate the ability to interpret and apply corrective measures for abnormal feeding behaviour.

Title: APPLY ADVANCED BREEDING PRACTICES FOR FARM ANIMALS

Specific Outcome 1: Identify and classify the signs of giving birth and problem births in female breeding animals.

Specific Outcome 2: Demonstrate an understanding of the different breeding methods in farm animals.

Specific Outcome 3: Demonstrate an understanding of the basic reproductive cycles of farm animals.

Specific Outcome 4: Define the factors affecting the reproductive cycles of farm animals.

Title: EXPLAIN THE HARVESTING OF ANIMAL PRODUCTS

Specific Outcome 1: Evaluate animal products that are suitable for harvesting based on their availability and value.

Specific Outcome 2: Create infrastructure to facilitate the harvesting of animal products.

Specific Outcome 3: Maintain animal harvesting systems.

Specific Outcome 4: Evaluate animal harvesting systems and suggest alternatives methods, processes or steps in animal product harvesting systems.

Specific Outcome 5: Understand and describe the processing of harvested products with special reference to adding value to such harvested animal products.

Title: EXPLAIN THE PREVENTION AND TREATMENT OF ANIMAL DISEASES

Specific Outcome 1: Perform the restraint of animals.

Specific Outcome 2: Perform basic veterinary procedures.

Specific Outcome 3: Treat and vaccinate animals under supervision.

Specific Outcome 4: Supervise the carrying out of basic principles of bio-security.

Specific Outcome 5: Carry out pre-planned programmes.

Title: MINIMISE RISK IN ANIMAL MANAGEMENT

Specific Outcome 1: Evaluate risks inherent in handling specific animals or a range of animals.

Specific Outcome 2: Demonstrate an understanding of systems required to manage or contain animals or a range of animals.

Specific Outcome 3: Evaluate animal management systems and suggest alternatives methods, processes or steps in safe management of animals.

Specific Outcome 4: Demonstrate an understanding and describe correct treatment of individuals who have been injured or otherwise affected by an animal or a range of animals.

ELECTIVES

Title: APPLY BASIC ARTIFICIAL INSEMINATION PRACTICES

Specific Outcome 1: Apply basic artificial insemination practices to animals.

Title: EXPLAIN DAIRY PRODUCTION

Specific Outcome 1: Describe the acceptable standard range of components of whole milk.

Specific Outcome 2: Identify and briefly describe the common end products of milk processing.

Specific Outcome 3: Identify the main types of market outlets for the milk producer.

Specific Outcome 4: Critically assess parlour hygiene routines.

Specific Outcome 5: Critically monitor efficiency of milk cooling devices.

Specific Outcome 6: Critically assess milking methods in use.

Specific Outcome 7: Ensure regular recording routines are applied.

Title: APPLY PIG HUSBANDRY PRACTICES

Specific Outcome 1: Distinguish and treat malnutrition, anorexia in pigs and vaccinate pigs against diseases.

Specific Outcome 2: Describe and demonstrate post-farrowing husbandry practices in piglets.

Specific Outcome 3: Identify problems at farrowing and provide assistance where necessary.

Specific Outcome 4: Identify the need for cross fostering and implement where necessary.

Specific Outcome 5: Apply basic artificial insemination practices to pigs.

Specific Outcome 6: Recognise and ensure normal mating behaviour in breeding pigs.

Title: ORGANISE OF THE SHEARING SHED ACTIVITIES

Specific Outcome 1: Supervise cleaning of shearing shed.

Specific Outcome 2: Plan the shearing shed layout.

Specific Outcome 3: Supervise handling and sorting of fibres.

Specific Outcome 4: Recommend procedures to deal with the different potential contaminant materials that can cause contamination problems in a shearing shed.

**Title: APPLY BLADE-SHEARING SKILLS AND PREPARE
BLADE-SHEARING EQUIPMENT**

Specific Outcome 1: Set up and maintain hand-shears and grinding equipment.

Specific Outcome 2: Apply general safety measures and deal with emergencies in the shearing shed.

Specific Outcome 3: Prepare the shearing area.

Specific Outcome 4: Catch, handle and hold sheep for shearing purposes.

Specific Outcome 5: Shear sheep by applying correct blade-shearing techniques.

Specific Outcome 6: Apply basic health and fitness measures/principles.

Title: APPLY MACHINE-SHEARING SKILLS AND PREPARE SHEARING EQUIPMENT

Specific Outcome 1: Erect and set up a shearing machine.

Specific Outcome 2: Set and maintain a hand piece.

Specific Outcome 3: Set up and maintain a grinder.

Specific Outcome 4: Apply general safety measures and deal with emergencies in the shearing shed.

Specific Outcome 5: Prepare the shearing area.

Specific Outcome 6: Catch, handle and hold sheep for shearing purposes.

Specific Outcome 7: Shear sheep by applying correct machine-shearing techniques.

Specific Outcome 8: Apply basic health and fitness measures/principles.

Title: MANAGE SITES FOR BEE KEEPING

Specific Outcome 1: Evaluate environmental niches that are suitable as bee sites or for bee placement.

Specific Outcome 2: Create infrastructure to facilitate the establishment of bee sites or bee placement.

Specific Outcome 3: Maintain bee sites or placements.

Specific Outcome 4: Demonstrate an understanding and describe basic pollination biology with specific reference to nectar and pollen production in flowering commercial plants and the various pollinating agents.

Title: COMMUNICATE AGRI/ECOTOURISM PRINCIPLES AND CONCEPTS EFFECTIVELY AND ADAPT TO NEEDS

Specific Outcome 1: Identify and describe the contribution of amenities to the Agri/Ecotourism destination.

Specific Outcome 2: Identify and describe the contribution of access structures to the Agri/Ecotourism destination.

Specific Outcome 3: Identify and describe the contribution of auxiliary services to the Agri/Ecotourism destination.

Specific Outcome 4: Identify and describe the contribution of attractions to the Agri/Ecotourism destination.

Specific Outcome 5: Communicate the relationship between the components of a successful Agri/Ecotourism destination.



LEVEL 3.2

National Certificate In Plant Production, NQF Level 3

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 3

Credits: 120

Issue Date:

Review Date:

RATIONALE:

This qualification provides learners the opportunity to gain a qualification in Plant Production. The range of typical learners that will enter this qualification will vary and includes:

- Farm operators who wish to progress to the level of supervisor within farming operations in Plant Production;
- Farm owners, in possession of an equivalent qualification at NQF 2;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- Possible candidates for promotion identified by the community as leaders.
- Learners may come from both genders.

The learner will engage in supervision and operational activities relevant to Plant Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Plant Production) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of plant production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of

competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in Plant Production whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Farm Operators to progress towards a Supervisory position with specific reference to Plant Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to supervise and lead a working team, performing the agricultural processes as applicable to Plant production in a range of Plant Production contexts under general supervision.
- The Learner will be able to take responsibility for her/his own actions and also take responsibility for supervising others at lower levels within an Plant Production context.
- Competency will be gained in any of the specialized sub-fields of Plant Production as specified under **Areas Of Specialization** (i.e. Vegetables, Fruit Production, Hydroponics, etc.)
- The learner will be able to take responsible decisions within a wide range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Plant Production context.
- The Learner will be able to oversee the implementation of a wide range of procedures and will be able to ensure the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.
- Finally, Learners will be able to guide and direct others in terms of the implementation and control of development projects within a Plant Production context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 2 and technical skills pertaining to agricultural activities equivalent to NQF 2.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into four categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Plant Production

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply various communication skills within the agricultural environment.	<ul style="list-style-type: none"> • Oral reports are made or data is entered on pre-printed forms or screens. • Instructions (including challenging, inappropriate or incorrect instructions) are received, evaluated, clarified and acted on. • Workplace language, e.g. special purpose gestures and terminology to describe conditions, events, problems and actions is used. • Meetings (describe conditions, state own opinions) are participated in. • Information is collected from a variety of sources by recognising / reading / and/or using sensory cues. • Information (collected from instruments, gauges, outputs, incidents, operations) is organised, summarised and responded to. • Conditions or states are determined by measuring (i.e. temperature, size, mass,

	colour).
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> • Numbers are used to count and measure. • A calculator is used to add, subtract, divide or multiply. • Simple fractions and decimals are read and written. • Simple ratios / percentages are applied as part of an instruction. • Proper use is made of number sequence, i.e. batch numbers. • Shapes are recognised. • Money is calculated in Rands and cents (related to pay, deductions, price, etc.) • Business related application are applied. • Underpinning natural science principles are applied.
Recognise, interpret and report on a range of deviations during the data collection process.	<ul style="list-style-type: none"> • Data is collected correctly • Tools and equipment required for data collection is utilised correctly. • Data reports are submitted
Incorporate basic concepts of sustainable farming systems into practical farm activities	<ul style="list-style-type: none"> • A sustainable farming system is defined and described. • The nature of a system is explained. • The balance of sustainability, productivity and conservation of resources is explained. • The sustainability of a whole farming system is monitored and re-evaluated.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Maintain stores and agro-inputs in stores.	<ul style="list-style-type: none"> • Orders are received. • Records are updated. • Stock levels are maintained. • Stock are issued. • Suppliers are evaluated. • Safety regulations are observed.
Participate in the production planning process on a day-to-day basis.	<ul style="list-style-type: none"> • Production schedules are planned. • Production choices are explained. • The links between scheduling and financial planning is explained. • Different scheduling techniques are explained.
Apply the components of the marketing cycle in an alternative agricultural marketing environment.	<ul style="list-style-type: none"> • The managerial vision of the agribusiness is explained. • Alternative marketing environments are described. • The variables of the marketing cycle are explained. • Characteristics and critical success factors of marketing is explained.

	<ul style="list-style-type: none"> • The supply chain is modified according to the requirements of alternative markets.
Determine viability of agri-business.	<ul style="list-style-type: none"> • Sources of income are identified and explained. • Costs are identified and explained. • Break-even budgets are developed. • Whole farm budgets are developed. • Financial outcomes are predicted.
Assist with the management of human resources in an agricultural environment.	<ul style="list-style-type: none"> • HR rules, policies and procedures are applied. • The role of stakeholders is explained. • Contracts are interpreted and prepared. • Employment relations are explained in an agricultural context.
Interpret the factors influencing agricultural enterprises, enterprise selection, production, and apply such interpretation in agricultural planning.	<ul style="list-style-type: none"> • Requirements re natural resources and infrastructure for the selection of the relevant enterprise is recognized and interpreted. • Infrastructure for the selection of the enterprise is categorized. • Appropriate crops and/or animals for the relevant enterprise are determined. • The production procedures (including harvesting and post harvesting activities) are interpreted.

3. *Agricultural Practices*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Monitor and supervise the implementation of food safety and quality, production, environmental and social practices, and awareness within the agricultural supply chain.	<ul style="list-style-type: none"> • An understanding of the concept of traceability in the agricultural supply chain is demonstrated. • Non-conformances with respect to food safety, production, environmental, and social practices in the agricultural environment are reported. • Internal audits in the agricultural environment are explained. • Food safety and quality principles as related to the agricultural supply chain are applied.
Apply the principles of water quality management and adjust systems to ensure appropriate levels of quality.	<ul style="list-style-type: none"> • Abnormalities in water quality are recorded and interpreted • Environmental aspects of water quality management are explained • Corrective actions are taken to ensure the appropriate quality • Quality assurance systems are implemented and maintained
Apply a routine maintenance and servicing plan.	<ul style="list-style-type: none"> • Scheduling of routine maintenance is explained • A service plan is implemented • Maintenance procedures are applied

	<ul style="list-style-type: none"> • Tools, equipment and machinery are maintained
Monitor practices to conserve the environment, including natural resources whereby ensuring optimal utilization of national resources on the farm	<ul style="list-style-type: none"> • The elements of an ecosystem and a food chain are explained. • The occurrence of different types of fauna and flora and the sustainable utilisation thereof is monitored. • Soil maintenance and water management practices are monitored. • The energy cycle is explained. • A 2 dimensional map of the direct vicinity is interpreted.
Decide on appropriate land capability options for a given field.	<ul style="list-style-type: none"> • Soil survey results and physical observation are interpreted and used in decision-making. • A land capability analysis to serve as the basis for appropriate enterprise selection for the farm is prepared.

4. **Plant Production**

On achieving this qualification the learner will be able to:

Identify and describe the physiological processes and anatomical structures of a plant	<ul style="list-style-type: none"> • The basic functioning and structure of the plant cell is identified and described. • The effects of the environment on the physiology and germination of seed is explained. • The anatomy and function of roots is explained. • The anatomy and physiology of the leaf is explained. • The anatomy and physiology of flowers and fruit are explained.
Perform soil nutrient preparations in a safe, effective and responsible manner for the benefit of plant/crop growth with consideration to the environment.	<ul style="list-style-type: none"> • Soil nutrients are applied by using specialized equipment. • The collection of samples, storage and dispatch of samples to appropriate service providers is supervised. • The impact of the properties of soil on plant nutrition and soil preparation is explained. • Nutritional deficiencies in various crops are interpreted and remediation is suggested.
Plants are propagated in a limited range of conditions	<ul style="list-style-type: none"> • Environmental requirements for the propagation of plants are described. • General propagation procedures are demonstrated. • Environmental conditions are monitored correctly. • The appropriate tools and equipment are applied during propagation.
Apply basic control measures for	<ul style="list-style-type: none"> • Common pests are identified and

insects, plant diseases and common weeds.	<p>described.</p> <ul style="list-style-type: none"> • Unfamiliar insects are collected. • Disease symptoms are described. • Incidence of weeds are reported.
Monitor and co-ordinate the harvesting of crops.	<ul style="list-style-type: none"> • The use of harvesting tools and equipment is explained. • Maturity indexing is explained. • Specific procedures for the harvesting of crops are explained. • Health, hygiene and safety plan is implemented. • Waste collection and disposal plan is implemented. • The care and maintenance of tools and harvesting equipment is described.
Monitor and supervise the manipulation of plants by applying a broad range of techniques.	<ul style="list-style-type: none"> • The use of appropriate tools / equipment is monitored. • Framework development as part of plant manipulation is monitored. • Flower and fruit manipulation is monitored. • Pruning as vegetative plant manipulation methods are monitored.

NOTE: Assessment should be specific to the area of operation (i.e. Either horticulture or agronomy including but not limited to arable and/or dry land production).

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Certificate III in Agriculture (General cross-sector qualification) in a plant production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more

Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is comparable to a NZNQF National Certificate in Agriculture (Level 3) in a plant production context. It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicons whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit

standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in agricultural plant production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as deciduous fruit, agronomic crop, sugar cane, vegetables, etc.) and/or system such as permaculture, organic production, hydroponic, etc.
- Technical competence in agricultural plant production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Plant Production include but are not limited to:

- Organic production,
- Hydroponic production,
- Perma-culture production,
- Agronomy,
- Horticulture,
- Natural resources harvesting.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Animal Production, NQF 3.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 4, namely:

- National Certificate in Plant Production, NQF 4.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers. The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Plant Production, NQF Level 3

FUNDAMENTAL

A minimum of 48 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
8968	Accommodate audience and context needs in oral communication	3	5
8969	Interpret and use information from texts	3	5
8973	Use language and communication in occupational learning programmes	3	5
8970	Write texts for a range of communicative contexts	3	5
	total		20

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
7454	Collect and use data to establish statistical and probability models and solve related problems	3	5
14106	Demonstrate understanding of real and imaginary numbers and real number systems	3	2
7458	Find the derivatives of a range of simple functions and apply these to problems involving tangents to curves and rates of change	3	2
7455	Identify and work with simple forms of complex numbers	3	1
14108	Measure, estimate, calculate physical quantities, explore, describe and represent, interpret, justify geometrical relationships in 2 & 3-dimensional space relevant to the life or workplace of the community	3	4
7456	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	3	2
	total		16

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Supervise the Collection of Agricultural Data	3	5
New	Incorporate Basic Concepts of Sustainable Farming Systems Into Practical Farm Activities	3	7

CORE

64 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Explain store inputs, categories, labelling and storage methods	3	3
New	Explain the planning and scheduling of tasks in a production environment.	3	3
New	Explain application of marketing principles within an alternative and dynamic agricultural marketing environment.	3	3
New	Explain costing and the viability of an agribusiness.	3	3
New	Explain human resource policies and procedures	3	3
New	Interpret factors influencing agricultural enterprises and plan accordingly.	3	3

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Monitor and supervise a food safety and quality management system in the agricultural supply chain.	3	3
New	Maintain water quality parameters	3	2
New	Monitor natural resource management practices.	3	4
New	Assist in farm planning and layout for conservation and rainwater harvesting.	3	3
New	Apply routine maintenance and servicing plans and procedures.	3	3
New	Apply crop protection and animal health products effectively and responsibly.	2	4

PLANT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Demonstrate a basic understanding of the physiological functioning of the anatomical structures of the plants.	3	3
New	Manage soil fertility and plant nutrition.	3	5
New	Explain the propagation of plants.	3	4
New	Monitor the operation and maintenance of irrigation systems.	3	3
New	Monitor plant manipulation.	3	3
New	Monitor pests, diseases and weeds on crops.	3	5
New	Monitor and coordinate the harvesting of agricultural products.	3	4

ELECTIVE

A minimum of 8 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELD OF SPECIALISATION: SUSTAINABLE HARVESTING OF NATURAL RESOURCES			
NLRD	TITLE	LEVEL	CREDIT
New	Maintain and support sustainable wild flower harvesting practices.	3	5

FIELD OF SPECIALISATION: ORGANIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Introduction to organic certification and internal control systems.	3	4

FIELD OF SPECIALISATION: PERMA-CULTURE PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Identify and apply permaculture principles	3	5

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
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NLRD	TITLE	LEVEL	CREDIT
New	Communicate agri/eco tourism principles and concepts effectively and adapt to needs.	3	5

FIELD OF SPECIALISATION: HYDROPONIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Produce crop in a hydroponic system	4	4

**National Certificate In Plant Production, NQF Level 3
Unit Standards, NQF 3**

AGRICULTURAL SPECIFIC FUNDAMENTAL

Title: SUPERVISE THE COLLECTION OF AGRICULTURAL DATA

Specific Outcome 1: Ensure that data is collected correctly.

Specific Outcome 2: Ensure that the equipment and tools required for data collection are on hand.

Specific Outcome 3: Ensure that collated data and reports are submitted as required.

Specific Outcome 4: Ensure that the required health and safety regulations are followed.

Title: INCORPORATE BASIC CONCEPTS OF SUSTAINABLE FARMING SYSTEMS INTO PRACTICAL FARM ACTIVITIES

Specific Outcome 1: Identify the basic components of sustainable farming systems.

Specific Outcome 2: Demonstrate an understanding of a system and the nature of a system.

Specific Outcome 3: Demonstrate an understanding of the balance of sustainability, productivity and conservation of resources.

Specific Outcome 4: Define and describe a sustainable farming system.

Specific Outcome 5: Monitor and re-evaluate sustainability of a whole farming system.

AGRICULTURAL BUSINESS

Title: **EXPLAIN STORE INPUTS CATEGORIES,
LABELING AND STORAGE METHODS**

Specific Outcome 1: Receive orders of agro-inputs appropriately.

Specific Outcome 2: Update records correctly.

Specific Outcome 3: Maintain levels of agro-inputs within acceptable limits and complete requisition forms correctly.

Specific Outcome 4: Explain the issuing of stock (agro-inputs) correctly.

Specific Outcome 5: Observe legislation regarding handling and storage of agro-inputs to avoid penalties.

Specific Outcome 6: Schedule the flow of agro-inputs to avoid deterioration and wastage.

Specific Outcome 7: Evaluate alternative suppliers for efficiency, product quality and price.

Specific Outcome 8: Inspect, issue and check returned equipment.

Title: **EXPLAIN THE PLANNING AND SCHEDULING OF TASKS IN
A PRODUCTION ENVIRONMENT**

Specific Outcome 1: Explain production planning and the different levels of planning that can be used in production planning activities.

Specific Outcome 2: Demonstrate an understanding of scheduling.

Specific Outcome 3: Demonstrate production optimisation techniques.

Specific Outcome 4: Demonstrate the ability to make meaningful comments on the planning and scheduling process

**Title: EXPLAIN APPLICATION OF MARKETING PRINCIPLES
WITHIN AN ALTERNATIVE AND DYNAMIC AGRICULTURAL
MARKETING ENVIRONMENT**

Specific Outcome 1: Demonstrate an awareness of the managerial vision of the agribusiness with specific relation to the dynamic environment in which it operates.

Specific Outcome 2: Monitor the alternative marketing environment and determine variables in marketing cycle for a specific agricultural commodity.

Specific Outcome 3: Distinguish the characteristics and critical success factors of alternative markets for a specific agricultural commodity.

Specific Outcome 4: Modify the marketing supply chain cycle for alternative markets of a specific agricultural commodity.

**Title: EXPLAIN COSTING AND THE VIABILITY OF AN AGRI-
BUSINESS**

Specific Outcome 1: Identify and budget for the various sources of income generation available to the agri-business.

Specific Outcome 2: Identify and budget for the various costs impacting on the agri-business.

Specific Outcome 3: Demonstrate an understanding of the utilization of break-even budgets to calculate break-even points.

Specific Outcome 4: Demonstrate the utilisation of whole farm budgets to predict and focus financial outcomes of an agri-business.

Title: EXPLAIN HUMAN RESOURCE POLICIES AND PROCEDURES

Specific Outcome 1: Demonstrate an understanding of Human Resource rules, policies and procedures.

Specific Outcome 2: Demonstrate an understanding of the various stakeholders and their roles within an organisation.

Specific Outcome 3: Demonstrate involvement with the preparation and interpretation of contracts and agreements applicable at the work place.

Specific Outcome 4: Demonstrate an understanding of employment relations in an organisation.

Title: INTERPRET FACTORS INFLUENCING AGRICULTURAL ENTERPRISES AND PLAN ACCORDINGLY

Specific Outcome 1: Interpret and categorise natural resources required for the selection of the relevant enterprise.

Specific Outcome 2: Categorise and maintain infrastructure for the selection of the enterprise.

Specific Outcome 3: Determine stock required for the relevant enterprise.

Specific Outcome 4: Define and interpret production procedures within the relevant enterprise.

Specific Outcome 5: Determine and apply harvest procedures within the relevant enterprise.

Specific Outcome 6: Compare and interpret post harvest procedures within relevant enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: **MONITOR AND SUPERVISE A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN**

Specific Outcome 1: Demonstrate an understanding of the concept of traceability in the agricultural supply chain.

Specific Outcome 2: Perform basic record keeping activities on the farm.

Specific Outcome 3: Report non-conformances with respect to food safety, production, environmental, and social practices in the agricultural environment.

Specific Outcome 4: Understanding basic health, social and environmental issues which relate to the agricultural environment.

Specific Outcome 5: Demonstrate a basic understanding of internal audits in the agricultural environment.

Specific Outcome 6: Operate food safety and quality principles as related to the agricultural supply chain.

Title: **MAINTAIN WATER QUALITY PARAMETERS**

Specific Outcome 1: Read, record and interpret certain parameters and abnormalities in water quality.

Specific Outcome 2: Demonstrate an understanding of critical control points in water quality management.

Specific Outcome 3: Enable corrective action to occur on certain operational technical that control specific physical and chemical factors in water and relate it to a specific organism's water quality requirement.

Specific Outcome 4: Ensure that quality assurance systems related to water quality are in place and maintained.

Title: MONITOR NATURAL RESOURCE MANAGEMENT PRACTICES

Specific Outcome 1: Know and monitor the occurrence of key types of fauna and flora and their environmental requirements.

Specific Outcome 2: Demonstrate an understanding of the elements of an ecosystem and a food chain.

Specific Outcome 3: Identify the key fauna and flora types and their sustainable management.

Specific Outcome 4: Identify the different soil categories, the utilisation and maintenance thereof.

Specific Outcome 5: Monitor and implement principles of water management.

Specific Outcome 6: Demonstrate a basic understanding of the energy cycle.

Specific Outcome 7: Read a two dimensional map of the direct vicinity.

Title: ASSIST IN FARM PLANNING AND LAYOUT FOR CONSERVATION AND RAINWATER HARVESTING

Specific Outcome 1: Assist in a land capability analysis to serve as the basis for development of an area or an enterprise selection for the farm.

Specific Outcome 2: Design and construct prevention structures and infrastructure necessary for area, or the farm enterprise, applying sustainable resource use principles.

Specific Outcome 3: Design and construct basic infrastructure using simple tools and equipment.

Specific Outcome 4: Monitor and implement principles of natural resource management and infrastructure maintenance.

Specific Outcome 5: Maintain, report faults, and where appropriate repair them under supervision.

**Title: APPLY ROUTINE MAINTENANCE ANDSERVICING PLANS
AND PROCEDURES**

Specific Outcome 1: Understand and schedule a routine maintenance plan.

Specific Outcome 2: Implement a service maintenance plan.

Specific Outcome 3: Apply maintenance service procedures according to specified policies.

Specific Outcome 4: Adjust and maintain the good working order of tools, equipment and machinery.

PLANT PRODUCTION

**Title: DEMONSTRATE A BASIC UNDERSTANDING OF THE
PHYSIOLOGICAL FUNCTIONING OF THE ANATOMICAL
STRUCTURES OF THE PLANT**

Specific Outcome 1: Demonstrate an understanding of the structure and basic functioning of a plant cell.

Specific Outcome 2: Describe the effect of the environmental on the physiology and germination of the seed.

Specific Outcome 3: Describe the anatomy of the root and stem in relation to its function in the translocation of water and nutrients.

Specific Outcome 4: Demonstrate an understanding of the anatomy and physiology of a leaf.

Specific Outcome 5: Identify and describe the anatomical structures of a flower in relation to fruit and seed development.

Title: MANAGE SOIL FERTILITY AND PLANT NUTRITION

Specific Outcome 1: Prepare for soil nutrient applications using specialized equipment.

Specific Outcome 2: Supervise the collection of samples, storage and dispatch of samples to appropriate service providers.

Specific Outcome 3: Demonstrate an understanding of the properties of soil and how these impact on plant nutrition and soil preparation.

Specific Outcome 4: Identify and interpret symptoms of nutritional deficiencies in various crops and make basic recommendations.

Specific Outcome 5: Supervise and implement soil preparation and remediation.

Title: EXPLAIN THE PROPAGATION OF PLANTS

Specific Outcome 1: Demonstrate an understanding of the function of environmental requirements for propagation within a specific agricultural production context.

Specific Outcome 2: Demonstrate an understanding of the general propagation procedures and select appropriate procedures within a specific agricultural production context.

Specific Outcome 3: Monitor environmental conditions in the propagation area within a specific agricultural production context.

Specific Outcome 4: Choose and apply the necessary tools for the propagation within a specific agricultural production context.

Title: MONITOR THE OPERATION AND MAINTENANCE OF IRRIGATION SYSTEMS

Specific Outcome 1: Modify and implement irrigation schedules for various crops.

Specific Outcome 2: Ensure the efficient operation of irrigation systems.

Specific Outcome 3: Collect and record data in an agricultural field.

Specific Outcome 4: Prepare maintenance programmes for irrigation systems.

Specific Outcome 5: Supervise irrigation activities.

Title: MONITOR PLANT MANIPULATION

Specific Outcome 1: Monitor and supervise the use of appropriate tools / equipment for pre-determined manipulation methods.

Specific Outcome 2: Monitor and supervise framework development principles as part of plant manipulation methods.

Specific Outcome 3: Monitor and supervise flower and fruit manipulation.

Specific Outcome 4: Monitor and supervise pruning as vegetative plant manipulation methods appropriate to the crop.

Title: MONITOR PESTS, DISEASES AND WEEDS ON CROPS

Specific Outcome 1: Monitor the common pests prevalent in the specific agricultural enterprise.

Specific Outcome 2: Collect insects not familiar and that had been identified.

Specific Outcome 3: Monitor the symptoms of disease associated with the agricultural enterprise.

Specific Outcome 4: Monitor and report the incidence of weeds in the agricultural enterprise.

Title: MONITOR AND CO-ORDINATE THE HARVESTING OF AGRICULTURAL PRODUCTS

Specific Outcome 1: Select harvesting equipment and tools for specific agricultural enterprise.

Specific Outcome 2: Demonstrate an understanding of sampling for maturity indexing.

Specific Outcome 3: Demonstrate an understanding of the harvesting of crops according to harvesting plan..

Specific Outcome 4: Implement a health, hygiene and safety plan during harvesting.

Specific Outcome 5: Implement the waste collection and disposal plan.

Specific Outcome 6: Manage the care and maintenance of harvesting equipment.

ELECTIVE

Title: MAINTAIN AND SUPPORT SUSTAINABLE WILD FLOWER HARVESTING PRACTICES

Specific Outcome 1: Supervise and manage a wild flower harvesting team.

Specific Outcome 2: Demonstrate an understanding and working knowledge of relevant legislation.

Specific Outcome 3: Recognise target and non-target species and minimize the impact on non-target species.

Specific Outcome 4: Demonstrate the ability to pick according to a harvesting schedule and keep appropriate records.

Specific Outcome 5: Implement appropriate harvesting techniques.

Specific Outcome 6: Monitor and support good harvesting and habitat management.

Title: INTRODUCTION TO ORGANIC CERTIFICATION AND INTERNAL CONTROL SYSTEMS

Specific Outcome 1: Carry out basic organic farm inspection of a small farm unit.

Specific Outcome 2: Support the Farmers Association with the application of organic rules.

Specific Outcome 3: Identify the requirements of specific certification bodies in terms of Internal Control Systems.

Title: IDENTIFY AND APPLY PERMACULTURE PRINCIPLES

Specific Outcome 1: Identify Permaculture site elements and resources and integrate these with each other.

Specific Outcome 2: Recognise and use local biotic and abiotic resources in a Permaculture context.

Specific Outcome 3: Use ecological processes and cycles in Permaculture applications.

Specific Outcome 4: Select appropriate sustainable living practices that reflect Permaculture ethics.

Title: COMMUNICATE AGRI/ECOTOURISM PRINCIPLES AND CONCEPTS EFFECTIVELY AND ADAPT TO NEEDS

Specific Outcome 1: Identify and describe the contribution of amenities to the Agri/Ecotourism destination.

Specific Outcome 2: Identify and describe the contribution of access structures to the Agri/Ecotourism destination.

Specific Outcome 3: Identify and describe the contribution of auxiliary services to the Agri/Ecotourism destination.

Specific Outcome 4: Identify and describe the contribution of attractions to the Agri/Ecotourism destination.

Specific Outcome 5: Communicate the relationship between the components of a successful Agri/Ecotourism destination.



LEVEL 4.1

National Certificate In Animal Production, NQF Level 4

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 4

Credits: 120

Issue Date:

Review Date:

RATIONALE:

The range of typical learners that will enter this qualification will vary and includes:

- Farm operators who wish to progress to the level of junior farm manager;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- School leavers (Gr. 12) from agricultural schools; and
- Learners may come from both genders.

The learner will engage in farm management and operational activities relevant to Animal Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Animal Production) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of animal production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production orientated competencies are ensured, other aspects such as agri-business and good

agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in Animal Production whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Supervisors to progress towards a Junior Farm Manager position with specific reference to Animal Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to manage Supervisors and working teams, performing the agricultural processes as applicable to animal production in a range of Animal Production taking responsibility for the quality and quantity of outputs.
- The Learner will be able to take complete responsibility for her/his own actions and also take responsibility for supervising others at lower levels within an Animal Production context under broad guidance and evaluation.
- Competency will be gained in any of the specialized sub-fields of Animal Production as specified under **Areas Of Specialization** (i.e. Small stock, Large Stock, Dairy Production, Aqua Culture, etc.) with a strong focus on management.
- The learner will be able to take responsible decisions within a wide range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Animal Production context.
- The Learner will be able to oversee the implementation of a wide range of procedures and will be able to ensure the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.
- Finally, Learners will be able to guide and direct others in terms of the planning, implementation and control of development projects within an Animal Production context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 2 and technical skills pertaining to agricultural activities equivalent to NQF 3.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into four categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Animal Production

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply communication skills in an agricultural environment.	<ul style="list-style-type: none"> • Simple presentations are made. • Situations, reasons, implications, concepts, underlying principles, and check for understanding and adjust message are explained. • Conditions, situations and events, using data are reported on. • Work instructions are given. • Events, situations and conditions are summarised over time.
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> • Data is represented in graph and table form. • Trends are plotted. • Percentages from collected data (statistical calculations) are determined. • Measurements are accurately. • Calculations per area performed. • Financial implications of personal and business related issues are investigated and

	<p>monitored.</p> <ul style="list-style-type: none"> • Ratios are determined according to prescribed parameters e.g. mixtures, crops.
Implement a data collection plan in the agricultural sector.	<ul style="list-style-type: none"> • A data collection plan is interpreted. • A data collection plan is implemented. • Collected data is analysed. • Collected data is presented.
Plan and maintain environmentally sound agricultural processes by identifying knowledge processes and patterns of the environment in the region, and understanding the limitations of resources and how their management contributes to sustainable interactive agriculture, using environmental indicators.	<ul style="list-style-type: none"> • Sustainable agricultural processes and/or practices are planned and maintained, taking into account the four components of the environment. • Practical and efficient natural resource use is applied. • Environmental indicators are identified and used.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Manage stores and agro-inputs in stores.	<ul style="list-style-type: none"> • Agricultural inputs are received and checked • Records are updated and shortcomings identified • Payment is processed • Re-ordering is scheduled • Agricultural inputs are issued • Legislation is enforced • Equipment and facilities are inspected and maintained
Implement quality control aspects of an agribusiness	<ul style="list-style-type: none"> • Availability of resources is determined • Sustainable resource utilisation is ensured • The size of the enterprise is determined • Quality control is integrated into the production process
Demonstrate ability to development of an integrated marketing plan.	<ul style="list-style-type: none"> • A marketing plan is structured • A risk plan is structured • Remedial actions is identified
Demonstrate the ability to develop an integrated whole farm budget.	<ul style="list-style-type: none"> • Whole farm budget is prepared • A sensitivity analysis is demonstrated • An information system is developed • Managerial information is extracted from information system
Apply principles of human resources management in an agricultural environment.	<ul style="list-style-type: none"> • HR Policy is developed • Practices, principles, policies and procedures is communicated • Implementation plan is developed

	<ul style="list-style-type: none"> • A HR monitoring plan is implemented
Participate in the analysis, planning and management of an agri-business	<ul style="list-style-type: none"> • The general management functions as related to agri-business is described • A systems approach to agricultural production is explained • The components of a rolling agri-business plan is explained • An information management system is implemented • A risk plan is described and implemented
Describe the historical and current structure of the relevant industry within secondary agriculture.	<ul style="list-style-type: none"> • The historical and current framework of the industry is explained • Useful media is identified • Relevant Government Departments is identified • Legislation pertaining to the specific industry is described • Supportive resources is identified • The various relationships within the industry is explained
Evaluate and adjust the enterprise and production processes of animal and crop enterprises.	<ul style="list-style-type: none"> • The production processes, stock, harvest procedures and post harvest factors are evaluated and adjusted. • The production processes, stock, harvest procedures and post harvest factors are integrated within the relevant enterprise. • Enterprise processes are evaluated and adjusted so that natural resources required for the relevant enterprises are managed sustainably.

3. ***Agricultural Practices***

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Implement a management system related to food safety, production practices, as well as demonstrate environmental and social awareness within the agricultural supply chain.	<ul style="list-style-type: none"> • Good agricultural practices (GAP) associated with good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP) are maintained. • Reported non-conformances in respect of food safety, production, environmental and social practices and implement corrective action in the agricultural environment are remedied. • Internal audits according to the specifications of the trade/market in the agricultural environment are conducted. • Standard operational procedures with regard to agro-chemicals, food safety, quality production practices, environmental and social awareness within the agricultural supply chain

	are maintained.
Apply principles to design, prepare and implement basic operational procedures for the maintenance and storage of equipment, implements and infrastructure	<ul style="list-style-type: none"> • A task related maintenance programme is developed. • Basic operational procedures for storage and maintenance is explained and implemented. • Problem solving system is implemented. • Safety regulations are implemented. • The adaptation of equipment, implements and technology is explained.
Implement corrective actions to ensure water quality	<ul style="list-style-type: none"> • Corrective actions are taken based on a correct analysis of water quality data. • The impact of corrective actions is explained. • Corrective measures are implemented correctly. • The effects of corrective measures are explained.
Implement a natural resource management plan of the farm in relation to area wide planning.	<ul style="list-style-type: none"> • Routine natural resource management practices and/or applications on the farm are assessed for efficiency. • Preventative and/or rehabilitation measures are selected and applied. • Activities related to alien eradication, erosion control, seasonal and climatic conditions, utilisation of natural resources are scheduled. • Contributions are made to the strategic plan of the farm.
Maintain the most appropriate land-use on a farm by continuously assessing the natural resource base	<ul style="list-style-type: none"> • Collected and recorded information that informs the infrastructure development of an agricultural enterprise is categorized. • High and low yield potential areas are identified according to a range of land use options and criteria. • Maintenance tasks related to the natural resource base of a farm are organized. • Sustainability-based farm layout innovations are monitored and maintained.

4. **Animal Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Evaluate and manage animals according to specific criteria related to anatomical and physiological systems	<ul style="list-style-type: none"> • Processes of various anatomical systems are described. • The influence of anatomical systems on animal production is explained. • Systems and processes based on anatomical systems are explained. • The effect of nutrition and animal health on anatomical systems is explained.
Describe the scientific and technical principles of animal nutrition, feed, technology and	<ul style="list-style-type: none"> • The composition and function of specific nutrient components are explained. • The nutrient requirements of different

feeding management.	<p>animals are described.</p> <ul style="list-style-type: none"> • The calibration and adjustment of feed manufacturing and processing equipment is demonstrated. • The principles of feed preservation are explained. • The variation in standard of different feed components is explained. • The effects of feeding management decisions are explained. • Feed flow planning principles is explained.
Apply basic genetic principles in the planning and maintenance of animal breeding systems.	<ul style="list-style-type: none"> • Basic genetic principles pertaining to farm animals are explained. • The planning and maintenance of animal breeding systems is explained. • Different breeding systems are compared and explained. • A breeding management programme is developed.
Describe potential damage and harmful effects to animal products and suggest alternatives.	<ul style="list-style-type: none"> • Quality issues in animal processing systems are described. • Processing systems are evaluated. • Alternative processing practices is described. • Quality control systems are explained an implemented.
Apply repetitive and basic clinical procedures and apply correct dosages for the treatment of common diseases	<ul style="list-style-type: none"> • Correct practices of disease prevention are demonstrated. • Basic clinical procedure is demonstrated. • Instruments are calibrated correctly. • Dosages are administered correctly. • Correct vaccination procedure is demonstrated. • Pre-planned programmes are described.
Describe the historic and geographic origin and distribution of animal species and its use by man.	<ul style="list-style-type: none"> • The historical origin of animal species is described. • The geographical distribution of animal species is described. • The classification system for the animal kingdom is described. • The historic, traditional and current use of animals is described. • Basic biological concepts related to geographical, traditional and historical distribution is described.

NOTE: Assessment should be specific to the area of operation (i.e. Either large livestock, small livestock, pigs, poultry, etc.).

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Certificate IV in Agriculture (General cross-sector qualification) in an animal production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is comparable to a NZNQF National Certificate in Agriculture (Level 4) in an animal production context. It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in animal production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as abalone, fish, ostriches, etc.) and/or system such as permaculture, organic production, etc.
- Technical competence in animal production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Animal Husbandry include but are not limited to:

- Small stock production,
- Large stock production,
- Dairy production,
- Pig production,
- Poultry production,

- Game,
- Aqua / mari culture,
- Commercial insects
- Animal fibres harvesting,
- Bee keeping,
- Natural resources harvesting
- Organic production,
- Perma-culture production,
- Eco/Agri Tourism,
- Agro Chemicals,
- Horse Breeding,
- Etc.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Plant Production, NQF 4;

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 5, namely:

- National Certificate in Animal Production, NQF 5.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers. The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Certificate In Animal Production, NQF Level 4

FUNDAMENTAL

A minimum of 48 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
8974	Engage in sustained oral communication and evaluate spoken texts	4	5
8975	Read, analyse and respond to a variety of texts	4	5
8979	Use language and communication in occupational learning programmes	4	5
8976	Write for a wide range of contexts	4	5
	total		20

MATH LITERACY

NLRD	TITLE	LEVEL	CREDIT
12417	Measure, estimate & calculate physical quantities & explore, critique & prove geometrical relationships in 2 and 3 dimensional space in the life and workplace of adult with increasing responsibilities	4	4
7483	Solve problems involving sequences and series in real and simulated situations	4	4
7468	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2
7470	Work with a wide range of patterns and inverses of functions and solve related problems	4	6
	total		16

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Implement a Data Collection Plan	4	4
New	Plan and Maintain Environmentally Sound Agricultural Processes	4	8

CORE

58 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Procure and manage agricultural input.	4	3
New	Execute sustainable resource use and quality control.	4	3
New	Participate in the development and management of an agricultural marketing plan.	4	3
New	Prepare a whole farm budget and establish a proper integrated information system for an agribusiness.	4	3
New	Assume co-responsibility and participation in human resource management.	4	3
New	Evaluate, adjust and implement factors influencing agricultural enterprises.	4	3
New	Participate in the development and management of an agri-business plan.	4	3
New	Give an overview of the industry structure.	4	2

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Implement a food safety and quality management system in the agricultural supply chain.	4	3
New	Manage water quality parameters	4	3
New	Implement a natural resource management plan	4	3
New	Implement integrated farm layout and site selection.	4	3
New	Establish a plan for the monitoring, safe use and maintenance of equipment, implements, technology and infrastructure.	4	3

ANIMAL PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Explain functional animal anatomy and physiology.	4	3
New	Explain intermediate animal nutrition.	4	4
New	Plan and maintain breeding systems.	4	3
New	Manage the quality of the harvesting of animal products.	4	3
New	Implement animal health and bio-security programs.	4	3
New	Apply procedures to manage damage control in animals and victims.	4	2
New	Explain animal classification and natural history.	4	2

ELECTIVE

A minimum of 14 credits should be achieved in Elective, depending on the context of application or on the combination of the unit standards:

FIELDS OF SPECIALISATION: SMALL/LARGE STOCK PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New SETASA	Control feedlot production unit.	4	32
10976	Convey livestock	2	8
8347	Effective and responsible control of problem animals.	2	8
New	Supervise artificial insemination practices.	4	5

FIELDS OF SPECIALISATION: DAIRY PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Implement dairy production operations	4	6

FIELDS OF SPECIALISATION: PIG PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Apply advanced pig husbandry practices	4	5

FIELDS OF SPECIALISATION: BEE KEEPING			
NLRD	TITLE	LEVEL	CREDIT
New	Develop Bee Sites.	4	2

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Recognise agri/eco tourism within the strategic environment.	4	5

FIELDS OF SPECIALISATION: EXPORT			
NLRD	TITLE	LEVEL	CREDIT
New	Manage agricultural export logistics	4	4

**National Certificate In Animal Production, NQF Level 4
Unit Standards, NQF4**

AGRICULTURE SPECIFIC FUNDAMENTALS

Title: IMPLEMENT A DATA COLLECTION PLAN

Specific Outcome 1: Interpret a data collection plan.

Specific Outcome 2: Implement a data collection plan.

Specific Outcome 3: Interpret and analyse collected data.

Specific Outcome 4: Present collated data coherently.

Title: PLAN AND MAINTAIN ENVIRONMENTALLY SOUND AGRICULTURAL PROCESSES

Specific Outcome 1: Plan and maintain sustainable agricultural processes and/or practices taking into account the four components of the environment.

Specific Outcome 2: Demonstrate broad knowledge of the processes of the environment.

Specific Outcome 3: Apply practical and efficient natural resource use in an agricultural context.

Specific Outcome 4: Understand sustainable agriculture.

Specific Outcome 5: Identify and use environmental indicators.

AGRICULTURAL BUSINESS

Title: PROCURE AND MANAGE AGRICULTURAL INPUT

Specific Outcome 1: Check, receive and store a range of agricultural inputs appropriately.

Specific Outcome 2: Check updated records and identify shortcomings where applicable.

Specific Outcome 3: Order stock and process payment.

Specific Outcome 4: Schedule the re-ordering of agricultural inputs.

Specific Outcome 5: Issue various agricultural inputs from stores timely to prevent deterioration, spoilage and waste.

Specific Outcome 6: Enforce legislation regarding handling and storage of agricultural inputs.

Specific Outcome 7: Inspect and organise maintenance of equipment facilities and infrastructure.

Title: EXECUTE SUSTAINABLE RESOURCE USE AND QUALITY CONTROL

Specific Outcome 1: Determine availability of resources and maintain sustainable resource use.

Specific Outcome 2: Determine the scope of the enterprise / production unit.

Specific Outcome 3: Apply the principles of quality management systems.

Specific Outcome 4: Integrate the concept of quality control into the production process.

Title: PARTICIPATE IN THE DEVELOPMENT AND MANAGEMENT OF AN AGRICULTURAL MARKETING PLAN

Specific Outcome 1: Structure a marketing plan using a systems approach.

Specific Outcome 2: Structure a rolling marketing plan for a specific agricultural commodity.

Specific Outcome 3: Structure a risk plan to accommodate variables and uncertainties in a marketing plan for a specific agricultural commodity.

Specific Outcome 4: Monitor the marketing plan and apply remedial actions.

Title: PREPARE A WHOLE FARM BUDGET AND SET UP A PROPER INTEGRATED INFORMATION SYSTEM FOR AN AGRI-BUSINESS

Specific Outcome 1: Prepare an integrated whole farm budget.

Specific Outcome 2: Utilise sensitive analysis (what-if functions) to determine the economic and financial viability of a business.

Specific Outcome 3: Develop an information system for a commercially driven agri-business.

Specific Outcome 4: Utilise the information system to generate managerial information for improved decision-making.

Title: ASSUME CO-RESPONSIBILITY AND PARTICIPATION IN HUMAN RESOURCE MANAGEMENT

Specific Outcome 1: Participate in the development of relevant Human Resources related to policy and procedures.

Specific Outcome 2: Communicate the principle, practices, policies and procedures.

Specific Outcome 3: Participate in the implementation plan of agreed policies contracts and agreements applicable at the workplace.

Specific Outcome 4: Contribute to the monitoring and evaluation of Human Resource principles, plans, practices, policies and procedures.

Title: EVALUATE, ADJUST AND IMPLEMENT FACTORS INFLUENCING AGRICULTURAL ENTERPRISES

Specific Outcome 1: Evaluate and adjust production processes so that natural resources required are managed sustainably.

Specific Outcome 2: Compare and evaluate infrastructural factors affecting requirements.

Specific Outcome 3: Evaluate and adjust stock required.

Specific Outcome 4: Evaluate and adjust harvest procedures required.

Specific Outcome 5: Compare and integrate the post harvest factors.

Title: PARTICIPATE IN THE DEVELOPMENT AND MANAGEMENT OF AN AGRI BUSINESS PLAN

Specific Outcome 1: Demonstrate an understanding of the general management functions within an agri-business.

Specific Outcome 2: Use a systems approach to structure an agri-business plan.

Specific Outcome 3: Structure a rolling agri-business plan.

Specific Outcome 4: Structure an agri supply chain to optimise the production to marketing flow.

Specific Outcome 5: Implement an information system as planning & management support.

Specific Outcome 6: Demonstrate an understanding of and implement risk planning within the monitoring process.

Title: GIVE AN OVERVIEW OF THE INDUSTRY STRUCTURE

Specific Outcome 1: Explain the historical and current framework structure of the industry.

Specific Outcome 2: List media published from time to time within, for, about, on and on behalf of the industry.

Specific Outcome 3: List all relevant Government Departments that affect the specific industry.

Specific Outcome 4: Name all legislation pertaining to the specific industry.

Specific Outcome 5: Name and describe supportive resources, associations, groups, networks and services available to assist members of the industry.

Specific Outcome 6: Describe the various relationships within the industry as well as between the specific industry and its components and others within and outside of the sector.

GENERIC AGRICULTURAL PRACTICES

Title: IMPLEMENT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN

Specific Outcome 1: Manage a traceability system demonstrating operational efficiency in the agricultural supply chain.

Specific Outcome 2: Control and maintain a record system on the farm.

Specific Outcome 3: Manage and maintain good agricultural practices (GAP) associated with good manufacturing practices (GMP), good health practices, social responsibility and good environmental practices.

Specific Outcome 4: Take decisions on reported non-conformances in respect of food safety, production, environmental and social practices and implement corrective action in the agricultural environment.

Specific Outcome 5: Conduct internal audits according to the specifications of the trade/market in the agricultural environment.

Specific Outcome 6: Maintain standard operational procedures with regard to agro-chemicals, food safety, quality production practices and

environmental and social awareness within the agricultural supply chain.

Title: MANAGE WATER QUALITY PARAMETERS

Specific Outcome 1: Correctly assess, analyze and evaluate data and decide on corrective actions within operational technical systems independently to well-defined but possibly unfamiliar problems.

Specific Outcome 2: Demonstrate a thorough understanding of the reasons, impacts and implications of specific corrective actions.

Specific Outcome 3: Implement corrective actions related to the quality of water and water quality systems.

Specific Outcome 4: Evaluate the effects of corrective actions or adjustments on the water quality requirements.

Title: IMPLEMENT A NATURAL RESOURCE MANAGEMENT PLAN

Specific Outcome 1: Assess the efficiency of the routine natural resource management practices and/or applications on the farm.

Specific Outcome 2: Select and apply (from a range of preventative and/or rehabilitation measures) the most appropriate to the specific regional/local context.

Specific Outcome 3: Contribute to strategic planning in terms of natural resource management as relevant to the farm.

Specific Outcome 4: Schedule activities related to alien eradication, erosion control, seasonal and climatic conditions, natural resources use and effective use of water.

Title: IMPLEMENT INTEGRATED FARM LAYOUT AND SITE SELECTION

Specific Outcome 1: Prepare and categorise collected and recorded information in an agricultural environment that informs the infrastructure development of an agricultural enterprise.

Specific Outcome 2: Demonstrate the ability to identify high and low yield potential areas according to a range of land use options and criteria.

Specific Outcome 3: Organise and plan maintenance tasks related to the natural resource base of a farm, including the supervision of other workers.

Specific Outcome 4: Monitor and maintain sustainability-based farm layout innovations that have been implemented in an agricultural environment as part of a land use plan.

Title: **ESTABLISH A PLAN FOR THE MONITORING, SAFE USE AND MAINTENANCE OF EQUIPMENT IMPLEMENTS, TECHNOLOGY AND INFRASTRUCTURE**

Specific Outcome 1: Develop a task related work program related to the scheduling and allocation of equipment and implements.

Specific Outcome 2: Prepare and implement basic operational procedures for the cleaning, storage and proper maintenance of equipment, implements and infrastructure.

Specific Outcome 3: Recognise, identify and solve problems related to the use of implements and equipment in an agricultural environment.

Specific Outcome 4: Draw up plans to ensure that safety regulations are implemented as prescribed for the use of implements, agro-chemicals and equipment.

Specific Outcome 5: Adapt equipment, implements and technology to suit different agricultural situations and processes.

ANIMAL PRODUCTION

Title: **EXPLAIN FUNCTIONAL ANIMAL ANATOMY AND PHYSIOLOGY**

Specific Outcome 1: Identify and understand in detail the processes active within the various anatomical systems in animals.

Specific Outcome 2: Identify and understand how anatomical systems within animals influence production of various animal products.

Specific Outcome 3: Monitor and advise others on animal systems and production processes based on anatomical systems.

Specific Outcome 4: Understand how animal health and nutrition affects animal anatomical systems.

Title: **EXPLAIN INTERMEDIATE ANIMAL NUTRITION**

Specific Outcome 1: Describe the composition and functions of specific nutrient components and feed ingredients.

Specific Outcome 2: Interpret the nutrient requirements of different animal species and categories.

Specific Outcome 3: Perform the calibration and adjustment of feed manufacturing and processing equipment.

Specific Outcome 4: Explain the principles of feed preservation.

Specific Outcome 5: Apply quality control measures that affect feeds.

Specific Outcome 6: Apply the relevant standards of different purchased feed ingredients and complete feeds.

Specific Outcome 7: Interpret the effects of feed evaluation results towards feeding management decisions and future food selection.

Specific Outcome 8: Apply feed flow planning principles.

Title: **PLAN AND MAINTAIN BREEDING SYSTEMS**

Specific Outcome 1: Explain and understand the basic genetic principles pertaining to farm animals.

Specific Outcome 2: Plan and maintain breeding systems for farm animals.

Specific Outcome 3: Compare and understand the different breeding methods that can be applied to farm animals.

Specific Outcome 4: Explain and maintain a breeding management programme for farm animals.

Title: **MANAGE THE QUALITY OF THE HARVESTING OF ANIMAL PRODUCTS**

Specific Outcome 1: Investigate animal product processing systems with regard to quality issues.

Specific Outcome 2: Communicate evaluations and findings regarding processing systems and the quality of harvested animal products processed by such systems to superiors.

Specific Outcome 3: Suggest alternative practices or quality control systems that will ensure retention of product quality.

Specific Outcome 4: Maintain systems implemented to ensure animal product quality.

Title: IMPLEMENT ANIMAL HEALTH AND BIO-SECURITY PROGRAMS

Specific Outcome 1: Supervise animal disease prevention and ensure correct practices are in place.

Specific Outcome 2: Ensure that basic clinical examination is done correctly.

Specific Outcome 3: Ensure correct dosage rates and calibrate and use instruments correctly.

Specific Outcome 4: Ensure that vaccination and treatment are done correctly.

Specific Outcome 5: Ensure that pre-planned programmes are carried out.

Title: APPLY PROCEDURES TO MANAGE DAMAGE CONTROL IN ANIMALS AND VICTIMS

Specific Outcome 1: Investigate animal defence mechanisms and evaluate related management procedures.

Specific Outcome 2: Communicate evaluations and findings concerning animal damage, to superiors and react with understanding when treating them.

Specific Outcome 3: Suggest alternative practices or quality control systems that will ensure safe handling of animals.

Specific Outcome 4: Maintain systems implemented to ensure safe handling and containment procedures.

Title: EXPLAIN ANIMAL CLASSIFICATION AND NATURAL HISTORY

Specific Outcome 1: Describe the historical origin of specific animal species, based on evidence.

Specific Outcome 2: Describe the geographic distribution of the specific animal based on its preferences.

Specific Outcome 3: Describe the specific animal species' position within the classification system of the animal kingdom.

Specific Outcome 4: Describe the historic, traditional and current use of the animal by man.

Specific Outcome 5: Describe the basic biological concepts that will illuminate the geographical, traditional and historical distribution and use of the animal.

ELECTIVE

Title: SUPERVISE ARTIFICIAL INSEMINATION PRACTICES

Specific Outcome 1: Monitor and evaluate artificial insemination procedures.

Title: IMPLEMENT DAIRY PRODUCTION OPERATIONS

Specific Outcome 1: Demonstrate knowledge of milking theory.

Specific Outcome 2: Demonstrate knowledge of the principles of hygiene.

Specific Outcome 3: Demonstrate knowledge of milk cooling devices.

Specific Outcome 4: Demonstrate the ability to critically assess parlour records and make basic operational decisions based on them.

Specific Outcome 5: Evaluate cause of tainted milk or other spoilage factors and take remedial action.

Title: APPLY ADVANCED PIG HUSBANDRY PRACTICES

Specific Outcome 1: Decide on the treatment for unhealthy pigs.

Specific Outcome 2: Plan the vaccination programme of pigs and piglets appropriately.

Specific Outcome 3: Design the processes to assist farrowing and cross fostering.

Specific Outcome 4: Integrate artificial insemination practices.

Title: DEVELOP BEE SITES

Specific Outcome 1: Investigate areas where sites may be developed or bees placed.

Specific Outcome 2: Initiate communication with the land owner regarding a land-use or rental agreement.

Specific Outcome 3: Develop sites, site infrastructure, site utilisation and site security.

Specific Outcome 4: Continuously evaluate bee sites regarding their value and relevance.

Title: RECOGNISE AGRI/ECOTOURISM'S STRATEGIC ENVIRONMENT

Specific Outcome 1: Identify the strengths of the Agri/Ecotourism venture as part of the strategic plan.

Specific Outcome 2: Identify the weaknesses of the Agri/Ecotourism venture as part of the strategic plan.

Specific Outcome 3: Identify the opportunities of the Agri/Ecotourism venture as part of the strategic plan.

Specific Outcome 4: Identify the threats of the Agri/Ecotourism venture as part of the strategic plan. Maintain, appraise and make recommendations on success factors within the strategic plan towards management.

Title: MANAGE AGRICULTURAL EXPORT LOGISTICS

Specific Outcome 1: Understand the export cycle & role of various role players.

Specific Outcome 2: Define the requirements of a good sales contract.

Specific Outcome 3: Appraise the use of appropriate Incoterms i.t.o. risk, responsibility & cost to structure sales, payment, carriage & insurance in the agri export process.

Specific Outcome 4: Understand taxes, incentives & payments involved within the export process.

Specific Outcome 5: Identify documentation needed within the agricultural export process.



LEVEL 4.2

National Certificate In Plant Production, NQF Level 4

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 4

Credits: 120

Issue Date:

Review Date:

RATIONALE:

The range of typical learners that will enter this qualification will vary and includes:

- Farm operators who wish to progress to the level of junior farm manager;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- School leavers (Gr. 12) from agricultural schools; and
- Learners may come from both genders.

The learner will engage in farm management and operational activities relevant to Plant Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Plant Production) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of plant production and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production

orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in Plant Production whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Supervisors to progress towards a Junior Farm Manager position with specific reference to Plant Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to manage Supervisors and working teams, performing the agricultural processes as applicable to Plant production in a range of Plant Production taking responsibility for the quality and quantity of outputs.
- The Learner will be able to take complete responsibility for her/his own actions and also take responsibility for supervising others at lower levels within an Plant Production context under broad guidance and evaluation.
- Competency will be gained in any of the specialized sub-fields of Plant Production as specified under **Areas Of Specialization** (i.e. Vegetables, Fruit Production, Hydroponics, etc.) with a strong focus on management.
- The learner will be able to take responsible decisions within a wide range based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Plant Production context.
- The Learner will be able to oversee the implementation of a wide range of procedures and will be able to ensure the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.
- Finally, Learners will be able to guide and direct others in terms of the planning, implementation and control of development projects within a Plant Production context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 2 and technical skills pertaining to agricultural activities equivalent to NQF 3.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into four categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Plant Production

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply communication skills in an agricultural environment.	<ul style="list-style-type: none"> • Simple presentations are made. • Situations, reasons, implications, concepts, underlying principles, and check for understanding and adjust message are explained. • Conditions, situations and events, using data are reported on. • Work instructions are given. • Events, situations and conditions are summarised over time.
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> • Data is represented in graph and table form. • Trends are plotted. • Percentages from collected data (statistical calculations) are determined. • Measurements are accurately. • Calculations per area performed. • Financial implications of personal and business related issues are investigated and monitored.

	Ratios are determined according to prescribed parameters e.g. mixtures, crops.
Implement a data collection plan in the agricultural sector	<ul style="list-style-type: none"> • A data collection plan is interpreted. • A data collection plan is implemented. • Collected data is analysed. • Collected data is presented.
Plan and maintain environmentally sound agricultural processes by identifying knowledge processes and patterns of the environment in the region, and understanding the limitations of resources and how their management contributes to sustainable interactive agriculture, using environmental indicators.	<ul style="list-style-type: none"> • Sustainable agricultural processes and/or practices are planned and maintained, taking into account the four components of the environment • Practical and efficient natural resource use is applied. • Environmental indicators are identified and used.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Manage stores and agro-inputs in stores.	<ul style="list-style-type: none"> • Agricultural inputs are received and checked • Records are updated and shortcomings identified • Payment is processed • Re-ordering is scheduled • Agricultural inputs are issued • Legislation is enforced • Equipment and facilities are inspected and maintained
Implement quality control aspects of an agribusiness	<ul style="list-style-type: none"> • Availability of resources is determined • Sustainable resource utilisation is ensured • The size of the enterprise is determined • Quality control is integrated into the production process
Demonstrate ability to development of an integrated marketing plan.	<ul style="list-style-type: none"> • A marketing plan is structured • A risk plan is structured • Remedial actions is identified
Demonstrate the ability to develop an integrated whole farm budget.	<ul style="list-style-type: none"> • Whole farm budget is prepared • A sensitivity analysis is demonstrated • An information system is developed • Managerial information is extracted from information system
Apply principles of human resources management in an agricultural environment.	<ul style="list-style-type: none"> • HR Policy is developed • Practices, principles, policies and procedures is communicated • Implementation plan is developed • A HR monitoring plan is implemented

Participate in the analysis, planning and management of an agri-business	<ul style="list-style-type: none"> • The general management functions as related to agri-business is described • A systems approach to agricultural production is explained • The components of a rolling agri-business plan is explained • An information management system is implemented • A risk plan is described and implemented
Describe the historical and current structure of the relevant industry within secondary agriculture.	<ul style="list-style-type: none"> • The historical and current framework of the industry is explained • Useful media is identified • Relevant Government Departments is identified • Legislation pertaining to the specific industry is described • Supportive resources is identified • The various relationships within the industry is explained
Evaluate and adjust the enterprise and production processes of animal and crop enterprises.	<ul style="list-style-type: none"> • The production processes, stock, harvest procedures and post harvest factors are evaluated and adjusted. • The production processes, stock, harvest procedures and post harvest factors are integrated within the relevant enterprise. • Enterprise processes are evaluated and adjusted so that natural resources required for the relevant enterprises are managed sustainably.

3. *Agricultural Practices*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Implement a management system related to food safety, production practices, as well as demonstrate environmental and social awareness within the agricultural supply chain.	<ul style="list-style-type: none"> • Good agricultural practices (GAP) associated with good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP) are maintained. • Reported non-conformances in respect of food safety, production, environmental and social practices and implement corrective action in the agricultural environment are remedied. • Internal audits according to the specifications of the trade/market in the agricultural environment are conducted. • Standard operational procedures with regard to agro-chemicals, food safety, quality production practices, environmental and

	social awareness within the agricultural supply chain are maintained.
Apply principles to design, prepare and implement basic operational procedures for the maintenance and storage of equipment, implements and infrastructure.	<ul style="list-style-type: none"> • A task related maintenance programme is developed • Basic operational procedures for storage and maintenance is explained and implemented • Problem solving system is implemented • Safety regulations are implemented • The adaptation of equipment, implements and technology is explained
Implement corrective actions to ensure water quality	<ul style="list-style-type: none"> • Corrective actions are taken based on a correct analysis of water quality data • The impact of corrective actions is explained • Corrective measures are implemented correctly • The effects of corrective measures are explained
Implement a natural resource management plan of the farm in relation to area wide planning.	<ul style="list-style-type: none"> • Routine natural resource management practices and/or applications on the farm are assessed for efficiency. • Preventative and/or rehabilitation measures are selected and applied. • Activities related to alien eradication, erosion control, seasonal and climatic conditions, utilisation of natural resources are scheduled. • Contributions are made to the strategic plan of the farm.
Maintain the most appropriate land-use on a farm by continuously assessing the natural resource base	<ul style="list-style-type: none"> • Collected and recorded information that informs the infrastructure development of an agricultural enterprise is categorized. • High and low yield potential areas are identified according to a range of land use options and criteria. • Maintenance tasks related to the natural resource base of a farm are organized. • Sustainability-based farm layout innovations are monitored and maintained.

4. **Plant Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Explain the different physiological processes involved in the growth and development of the plant	<ul style="list-style-type: none"> • The processes involved in cell division are described. • The process of transpiration and its role in water uptake is described. • The process of respiration in relation to gaseous exchange is described. • The process of transpiration is described. • Fruit maturity and ripening is described.
Establish and supervise the implementation of soil preparation procedures	<ul style="list-style-type: none"> • Nutritional programmes based on recommendations are set up. • A soil utilization plan for specified crops is implemented. • Full recommendations to remedy nutritional deficiencies are made. • Soil improvement activities according to soil properties are managed.
Propagate plants in a variety of situations	<ul style="list-style-type: none"> • Structures and facilities for various propagation strategies are identified. • The asexual propagation of a range of plants is described. • The utilisation of different types of propagation media and environments are described. • A process for post propagation activities is described.
Demonstrate an understanding of an integrated pest management system	<ul style="list-style-type: none"> • Basic trapping, monitoring and recording of pests, diseases and weeds are described. • The principles of IPM are described. • Different types of control measures in an IPM are described. • The decision making process in IPM is described.
Develop a harvesting plan for crops.	<ul style="list-style-type: none"> • A complete harvesting plan is prepared. • A maturity index plan is prepared. • A health, hygiene and safety plan is developed. • A waste disposal plan is developed. • A maintenance plan is developed.
Implement a plant manipulation management plan using a broad range of techniques.	<ul style="list-style-type: none"> • A plant manipulation management schedule is interpreted and implemented. • Appropriate hygiene and health standards are maintained.

NOTE: Assessment should be specific to the area of operation (i.e. Either horticulture or agronomy including but not limited to arable and/or dry land production).

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Certificate IV in Agriculture (General cross-sector qualification) in a plant production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is comparable to a NZNQF National Certificate in Agriculture (Level 4) in a plant production context. It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: The level of this qualification is too low to be compared with any Agricultural Qualification of the NVQ since levels of literacy and learning assumed to be in place is considerably higher than in South Africa.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in agricultural plant production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as deciduous fruit, agronomic crop, sugar cane, vegetables, etc.) and/or system such as permaculture, organic production, hydroponic, etc.
- Technical competence in agricultural plant production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Plant Production include but are not limited to:

- Organic production,
- Hydroponic production,
- Perma-culture production,
- Agronomy,

- Horticulture,
- Natural resources harvesting.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Animal Production, NQF 4.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 5, namely:

- National Certificate in Plant Production, NQF 5.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers. The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX**National Certificate In Plant Production, NQF Level 4****FUNDAMENTAL**

A minimum of 48 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
8974	Engage in sustained oral communication and evaluate spoken texts	4	5
8975	Read, analyse and respond to a variety of texts	4	5
8979	Use language and communication in occupational learning programmes	4	5
8976	Write for a wide range of contexts	4	5
	total		20

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
12417	Measure, estimate & calculate physical quantities & explore, critique & prove geometrical relationships in 2 and 3 dimensional space in the life and workplace of adult with increasing responsibilities	4	4
7483	Solve problems involving sequences and series in real and simulated situations	4	4

7468	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2
7470	Work with a wide range of patterns and inverses of functions and solve related problems	4	6
	total		16

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Implement a Data Collection Plan	4	4
New	Plan and Maintain Environmentally Sound Agricultural Processes	4	8

CORE

59 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Procure and manage agricultural input.	4	3
New	Execute sustainable resource use and quality control.	4	3
New	Participate in the development and management of an agricultural marketing plan.	4	3
New	Prepare a whole farm budget and establish a proper integrated information system for an agribusiness.	4	3
New	Assume co-responsibility and participation in human resource management.	4	3
New	Evaluate, adjust and implement factors influencing agricultural enterprises.	4	3
New	Participate in the development and management of an agri-business plan.	4	3
New	Give an overview of the industry structure.	4	2

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Implement a food safety and quality management system in the agricultural supply chain.	4	3
New	Manage water quality parameters	4	3
New	Implement a natural resource management plan	4	3
New	Implement integrated farm layout and site selection.	4	3

New	Establish a plan for the monitoring, safe use and maintenance of equipment, implements, technology and infrastructure.	4	3
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PLANT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Demonstrate a basic understanding of the physiological processes in plant growth and development.	4	3
New	Implement soil fertility and plant nutrition practices.	4	3
New	Propagate plants in a variety of situations.	4	3
New	Schedule the operation and maintenance of irrigation systems.	4	3
New	Manage plant manipulation methods of an agricultural crop.	4	3
New	Apply effective and responsible integrated pest, disease and weed control.	4	3
New	Develop a harvesting plan for the specific agricultural crop.	4	3

ELECTIVE

A minimum of 15 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELD OF SPECIALISATION: SUSTAINABLE HARVESTING OF NATURAL RESOURCES			
NLRD	TITLE	LEVEL	CREDIT
New	Ensure sustainable wild flower harvesting operations.	4	5

FIELD OF SPECIALISATION: ORGANIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Manage organic certification and internal control systems.	4	5

FIELD OF SPECIALISATION: PERMA-CULTURE PRODUCTION			
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NLRD	TITLE	LEVEL	CREDIT
New	Implement a permaculture site design	4	7

FIELD OF SPECIALISATION: HYDROPONIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Produce crop in a hydroponic system	4	4
New			

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	Recognise agri/eco tourism within the strategic environment.	4	5

FIELDS OF SPECIALISATION: EXPORT			
NLRD	TITLE	LEVEL	CREDIT
New	Manage agricultural export logistics	4	4

**National Certificate In Animal Production, NQF Level 4
Unit Standards, NQF4**

AGRICULTURE SPECIFIC FUNDAMENTALS

Title: IMPLEMENT A DATA COLLECTION PLAN

Specific Outcome 1: Interpret a data collection plan.

Specific Outcome 2: Implement a data collection plan.

Specific Outcome 3: Interpret and analyse collected data.

Specific Outcome 4: Present collated data coherently.

**Title: PLAN AND MAINTAIN ENVIRONMENTALLY SOUND
AGRICULTURAL PROCESSES**

Specific Outcome 1: Plan and maintain sustainable agricultural processes and/or practices taking into account the four components of the environment.

Specific Outcome 2: Demonstrate broad knowledge of the processes of the environment.

Specific Outcome 3: Apply practical and efficient natural resource use in an agricultural context.

Specific Outcome 4: Understand sustainable agriculture.

Specific Outcome 5: Identify and use environmental indicators.

AGRICULTURAL BUSINESS

Title: **PROCURE AND MANAGE AGRICULTURAL INPUT**

Specific Outcome 1: Check, receive and store a range of agricultural inputs appropriately.

Specific Outcome 2: Check updated records and identify shortcomings where applicable.

Specific Outcome 3: Order stock and process payment.

Specific Outcome 4: Schedule the re-ordering of agricultural inputs.

Specific Outcome 5: Issue various agricultural inputs from stores timely to prevent deterioration, spoilage and waste.

Specific Outcome 6: Enforce legislation regarding handling and storage of agricultural inputs.

Specific Outcome 7: Inspect and organise maintenance of equipment facilities and infrastructure.

Title: **EXECUTE SUSTAINABLE RESOURCE USE AND QUALITY CONTROL**

Specific Outcome 1: Determine availability of resources and maintain sustainable resource use.

Specific Outcome 2: Determine the scope of the enterprise / production unit.

Specific Outcome 3: Apply the principles of quality management systems.

Specific Outcome 4: Integrate the concept of quality control into the production process.

Title: PARTICIPATE IN THE DEVELOPMENT AND MANAGEMENT OF AN AGRICULTURAL MARKETING PLAN

Specific Outcome 1: Structure a marketing plan using a systems approach.

Specific Outcome 2: Structure a rolling marketing plan for a specific agricultural commodity.

Specific Outcome 3: Structure a risk plan to accommodate variables and uncertainties in a marketing plan for a specific agricultural commodity.

Specific Outcome 4: Monitor the marketing plan and apply remedial actions.

Title: PREPARE A WHOLE FARM BUDGET AND SET UP A PROPER INTEGRATED INFORMATION SYSTEM FOR AN AGRI-BUSINESS

Specific Outcome 1: Prepare an integrated whole farm budget.

Specific Outcome 2: Utilise sensitive analysis (what-if functions) to determine the economic and financial viability of a business.

Specific Outcome 3: Develop an information system for a commercially driven agri-business.

Specific Outcome 4: Utilise the information system to generate managerial information for improved decision-making.

Title: ASSUME CO-RESPONSIBILITY AND PARTICIPATION IN HUMAN RESOURCE MANAGEMENT

Specific Outcome 1: Participate in the development of relevant Human Resources related to policy and procedures.

Specific Outcome 2: Communicate the principle, practices, policies and procedures.

Specific Outcome 3: Participate in the implementation plan of agreed policies contracts and agreements applicable at the workplace.

Specific Outcome 4: Contribute to the monitoring and evaluation of Human Resource principles, plans, practices, policies and procedures.

**Title: EVALUATE, ADJUST AND IMPLEMENT FACTORS
INFLUENCING AGRICULTURAL ENTERPRISES**

Specific Outcome 1: Evaluate and adjust production processes so that natural resources required are managed sustainably.

Specific Outcome 2: Compare and evaluate infrastructural factors affecting requirements.

Specific Outcome 3: Evaluate and adjust stock required.

Specific Outcome 4: Evaluate and adjust harvest procedures required.

Specific Outcome 5: Compare and integrate the post harvest factors.

**Title: PARTICIPATE IN THE DEVELOPMENT AND
MANAGEMENT OF AN AGRI BUSINESS PLAN**

Specific Outcome 1: Demonstrate an understanding of the general management functions within an agri-business.

Specific Outcome 2: Use a systems approach to structure an agri-business plan.

Specific Outcome 3: Structure a rolling agri-business plan.

Specific Outcome 4: Structure an agri supply chain to optimise the production to marketing flow.

Specific Outcome 5: Implement an information system as planning & management support.

Specific Outcome 6: Demonstrate an understanding of and implement risk planning within the monitoring process.

Title: GIVE AN OVERVIEW OF THE INDUSTRY STRUCTURE

Specific Outcome 1: Explain the historical and current framework structure of the industry.

Specific Outcome 2: List media published from time to time within, for, about, on and on behalf of the industry.

Specific Outcome 3: List all relevant Government Departments that affect the specific industry.

Specific Outcome 4: Name all legislation pertaining to the specific industry.

Specific Outcome 5: Name and describe supportive resources, associations, groups, networks and services available to assist members of the industry.

Specific Outcome 6: Describe the various relationships within the industry as well as between the specific industry and its components and others within and outside of the sector.

GENERIC AGRICULTURAL PRACTICES

Title: **IMPLEMENT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN THE AGRICULTURAL SUPPLY CHAIN**

Specific Outcome 1: Manage a traceability system demonstrating operational efficiency in the agricultural supply chain.

Specific Outcome 2: Control and maintain a record system on the farm.

Specific Outcome 3: Manage and maintain good agricultural practices (GAP) associated with good manufacturing practices (GMP), good health practices, social responsibility and good environmental practices.

Specific Outcome 4: Take decisions on reported non-conformances in respect of food safety, production, environmental and social practices and implement corrective action in the agricultural environment.

Specific Outcome 5: Conduct internal audits according to the specifications of the trade/market in the agricultural environment.

Specific Outcome 6: Maintain standard operational procedures with regard to agro-chemicals, food safety, quality production practices and environmental and social awareness within the agricultural supply chain.

Title: **MANAGE WATER QUALITY PARAMETERS**

Specific Outcome 1: Correctly assess, analyze and evaluate data and decide on corrective actions within operational technical systems independently to well-defined but possibly unfamiliar problems.

Specific Outcome 2: Demonstrate a thorough understanding of the reasons, impacts and implications of specific corrective actions.

Specific Outcome 3: Implement corrective actions related to the quality of water and water quality systems.

Specific Outcome 4: Evaluate the effects of corrective actions or adjustments on the water quality requirements.

Title: IMPLEMENT A NATURAL RESOURCE MANAGEMENT PLAN

Specific Outcome 1: Assess the efficiency of the routine natural resource management practices and/or applications on the farm.

Specific Outcome 2: Select and apply (from a range of preventative and/or rehabilitation measures) the most appropriate to the specific regional/local context.

Specific Outcome 3: Contribute to strategic planning in terms of natural resource management as relevant to the farm.

Specific Outcome 4: Schedule activities related to alien eradication, erosion control, seasonal and climatic conditions, natural resources use and effective use of water.

Title: IMPLEMENT INTEGRATED FARM LAYOUT AND SITE SELECTION

Specific Outcome 1: Prepare and categorise collected and recorded information in an agricultural environment that informs the infrastructure development of an agricultural enterprise.

Specific Outcome 2: Demonstrate the ability to identify high and low yield potential areas according to a range of land use options and criteria.

Specific Outcome 3: Organise and plan maintenance tasks related to the natural resource base of a farm, including the supervision of other workers.

Specific Outcome 4: Monitor and maintain sustainability-based farm layout innovations that have been implemented in an agricultural environment as part of a land use plan.

Title: ESTABLISH A PLAN FOR THE MONITORING, SAFE USE AND MAINTENANCE OF EQUIPMENT IMPLEMENTS, TECHNOLOGY AND INFRASTRUCTURE

Specific Outcome 1: Develop a task related work program related to the scheduling and allocation of equipment and implements.

Specific Outcome 2: Prepare and implement basic operational procedures for the cleaning, storage and proper maintenance of equipment, implements and infrastructure.

Specific Outcome 3: Recognise, identify and solve problems related to the use of implements and equipment in an agricultural environment.

Specific Outcome 4: Draw up plans to ensure that safety regulations are implemented as prescribed for the use of implements, agro-chemicals and equipment.

Specific Outcome 5: Adapt equipment, implements and technology to suit different agricultural situations and processes.

PLANT PRODUCTION

Title: DEMONSTRATE A BASIC UNDERSTANDING OF THE PHYSIOLOGICAL PROCESSES IN PLANT GROWTH AND DEVELOPMENT

Specific Outcome 1: Demonstrate an understanding of the processes involved in cell division with relation to growth and development of the plant.

Specific Outcome 2: Describe the process of transpiration and its role in water uptake by a plant (Range: Water uptake refers to but it is not limited to the process of osmosis).

Specific Outcome 3: Describe the process of respiration in relation to gaseous exchange in the plant.

Specific Outcome 4: Demonstrate an understanding of the process of photosynthesis.

Specific Outcome 5: Demonstrate and understanding of the maturity and ripening of fruit.

Title: IMPLEMENT SOIL FERTILITY AND PLANT NUTRITION PRACTICES

Specific Outcome 1: Interpret recommendations and set up nutritional programmes based on recommendations.

Specific Outcome 2: Implement soil utilization plan for specified crops.

Specific Outcome 3: Identify and interpret symptoms of nutritional deficiencies, and make full recommendations.

Specific Outcome 4: Manage soil improvement according to soil properties.

Title: PROPAGATE PLANTS IN A VARIETY OF SITUATIONS

Specific Outcome 1: Recognise and use propagation structures, facilities and materials under supervision and do problem solving on his / her own in relation to processes.

Specific Outcome 2: Propagate a variety of plant types using different asexual methods (processes)..

Specific Outcome 3: Experiment with different types of propagation media and environment.

Specific Outcome 4: Establish a process for the post propagation activities.

Title: SCHEDULE THE OPERATION AND MAINTENANCE OF IRRIGATION SYSTEMS

Specific Outcome 1: Install an irrigation system.

Specific Outcome 2: Maintain and evaluate an irrigation system.

Specific Outcome 3: Efficiently operate an irrigation system.

Specific Outcome 4: Collate data pertaining to the long-term efficient management of an irrigation system.

Title: MANAGE PLANT MANIPULATION METHODS OF AN AGRICULTURAL CROP

Specific Outcome 1: Interpret a plant manipulation management plan.

Specific Outcome 2: Create and implement a plant manipulation schedule.

Specific Outcome 3: Supervise the implementation of a plant manipulation schedule.

Specific Outcome 4: Maintain appropriate hygiene and health standards.

Title: **APPLY EFFECTIVE AND RESPONSIBLE INTEGRATED PEST, DISEASE AND WEED CONTROL**

Specific Outcome 1: Demonstrate a basic understanding of the principles of integrated pest management.

Specific Outcome 2: Identify and differentiate between economically damageable pests, sporadic pests, diseases and symptoms using guides or resource material.

Specific Outcome 3: Understand the different types of control measures that can be applied in integrated pest management programme for pests, diseases and weeds.

Specific Outcome 4: Assist in developing a plan to assist the decision making process on the type of control to apply.

Specific Outcome 5: Execute post-application monitoring.

Specific Outcome 6: Apply environmental and community considerations. Oversee the management of an agrochemical storage facility effectively and responsibly.

Title: **DEVELOP A HARVESTING PLAN FOR THE SPECIFIC AGRICULTURAL CROP**

Specific Outcome 1: Identify, plan and obtain tools / equipment for the harvesting of the crop of the agricultural enterprise.

Specific Outcome 2: Develop a maturity-indexing plan and interpret the data.

Specific Outcome 3: Develop the harvesting plan for the crops according to the maturity indexing data.

Specific Outcome 4: Develop health, hygiene and safety plans for the harvesting operation and moving the product to the processing point.

Specific Outcome 5: Develop the plan for the disposal of waste as prescribe by the different rules and regulations and adhering to company policy.

Specific Outcome 6: Develop a plan for the proper care and maintenance of the equipment used.

ELECTIVE

Title: ENSURE SUSTAINABLE WILD FLOWER HARVESTING OPERATIONS

Specific Outcome 1: Demonstrate a broad knowledge of sustainable harvesting and eco system sustainability.

Specific Outcome 2: Demonstrate compliance with regards to relevant legislation.

Specific Outcome 3: Manage, analyse and integrate relevant data into operating procedures and regional monitoring program.

Specific Outcome 4: Develop and manage a wild flower harvesting plan for a farm.

Specific Outcome 5: Demonstrate the ability to do research and enhance current potential of harvesting products to keep with new market initiatives.

Title: MANAGE ORGANIC CERTIFICATION AND INTERNAL CONTROL SYSTEMS

Specific Outcome 1: Analyse national agricultural markets, and the factors that affect organic prices at local, provincial and national levels.

Specific Outcome 2: Be aware of main international market requirements for organic produce.

Specific Outcome 3: Manage preparation for farm inspection and certification processes.

Specific Outcome 4: Interpret the functioning and requirements of Internal Control Systems, and apply these to the management of a Farmers Association.

Title: IMPLEMENT A PERMACULTURE SITE DESIGN

Specific Outcome 1: Implement the integration of site elements and resources as outlined in a Permaculture Design.

Specific Outcome 2: Apply the use of local biological and other available resources according to a Permaculture Site Design.

Specific Outcome 3: Apply ecological processes and cycles according to plans outlined in a Permaculture Design.

Specific Outcome 4: Apply sustainable living practices as outlined in a Permaculture site design.

Title: PRODUCE CROP IN A HYDROPONIC CROP SYSTEM

Specific Outcome 1: Identify the properties of various growing media, for their use different hydroponic production contexts.

Specific Outcome 2: Prepare fertilizer / nutrient solution as per instructions.

Specific Outcome 3: Monitor PH and EC of the fertilizer solution.

Specific Outcome 4: Identify the characteristics of the hydroponic operation structure.

Title: RECOGNISE AGRI/ECOTOURISM WITHIN THE STRATEGIC ENVIRONMENT

Specific Outcome 1: Identify the strengths of the Agri/Ecotourism venture as part of the strategic plan.

Specific Outcome 2: Identify the weaknesses of the Agri/Ecotourism venture as part of the strategic plan.

Specific Outcome 3: Identify the opportunities of the Agri/Ecotourism venture as part of the strategic plan.

Specific Outcome 4: Identify the threats of the Agri/Ecotourism venture as part of the strategic plan. Maintain, appraise and make recommendations on success factors within the strategic plan towards management.

Title: MANAGE AGRICULTURAL EXPORT LOGISTICS

Specific Outcome 1: Understand the export cycle & role of various role players.

Specific Outcome 2: Define the requirements of a good sales contract.

Specific Outcome 3: Appraise the use of appropriate Incoterms i.t.o. risk, responsibility & cost to structure sales, payment, carriage & insurance in the agri export process.

Specific Outcome 4: Understand taxes, incentives & payments involved within the export process.

Specific Outcome 5: Identify documentation needed within the agricultural export process.



LEVEL 5.1

National Diploma In Animal Production, NQF Level 5

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 5

Credits: 240

Issue Date:

Review Date:

RATIONALE:

The range of typical learners that will enter this qualification will vary and includes:

- Junior farm managers who wish to progress to the level of farm manager;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- School leavers (Grade 12); and
- Learners may come from both genders.

The learner will engage in farm management and operational activities relevant to Animal Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Animal Production) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of animal production and management and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical production orientated competencies are

ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in Animal Production whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Junior Farm Managers to progress towards a Farm Manager position with specific reference to Animal Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to monitor, implement, co-ordinate, plan, control and provide leadership regarding the agricultural processes as applicable to animal production in a variety of Animal Production processes taking responsibility for the nature, quality and quantity of outputs.
- The Learner will be able to take complete responsibility for her/his own actions and also take responsibility for the achievements of groups within an Animal Production context.
- Competency will be gained in any of the specialized sub-fields of Animal Production as specified under **Areas Of Specialization** (i.e. Small stock, Large Stock, Dairy Production, Aqua Culture, etc.) with a strong focus on management.
- The learner will be able to take responsible decisions within a wide range of familiar and un-familiar contexts based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Animal Production context.
- The Learner will be able to select from a wide range of standard and non-standard procedures in Animal Production and will be able to ensure the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.
- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development

through the production of food, the improvement of household food security and access to mainstream agriculture.

- Finally, Learners will be able to guide and direct project teams in terms of the planning, implementation and control of development projects within an Animal Production context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 4 and technical skills pertaining to agricultural activities equivalent to NQF 4.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into four categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Animal Production

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply communication skills in an agricultural environment.	<ul style="list-style-type: none"> • Simple presentations are made. • Situations, reasons, implications, concepts, underlying principles, and check for understanding and adjust message are explained. • Conditions, situations and events, using data are reported on. • Work instructions are given. • Events, situations and conditions are summarised over time.
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> • Data is represented in graph and table form. • Trends are plotted. • Percentages from collected data (statistical calculations) are determined. • Measurements are accurately. • Calculations per area performed. • Financial implications of personal and business related issues are investigated and monitored. • Ratios are determined according to

	prescribed parameters e.g. mixtures, crops.
Develop a data collection plan in the agricultural sector	<ul style="list-style-type: none"> • Appropriate experimental designs are selected for a specific purpose. • The implementation of data collection plans is described. • Data collection reports are interpreted and recommendations are made. • Guidance is provided to data gathering team.
Integrate sustainable systems thinking into planning and management processes	<ul style="list-style-type: none"> • A whole farming system is developed. • Methods of systems thinking are applied in the design of soil, plant and animal management. • The sustainability of whole farming systems is monitored and re-evaluated.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Control an agricultural input chain	<ul style="list-style-type: none"> • Planning of a flow chain is described. • A plan on the flow of agricultural inputs is prepared and implemented. • Aspects of HR management related to the flow chain are described.
Develop a strategic plan for agri-processing activities.	<ul style="list-style-type: none"> • Market trends are analysed • Trends in technology are analysed • A production plan is developed
Describe the integration of the marketing component as a part of the total agri-business	<ul style="list-style-type: none"> • Variables and critical success factors are determined for agri-business • Market opportunities are identified and analysed • Marketing strategies are developed • The marketing function as part of the business plan is explained
Analyse and interpret financial information in an agri-business	<ul style="list-style-type: none"> • The use of physical and financial information to compile financial statements is demonstrated • The analysis of financial statements and physical records is demonstrated • A comparison of financial and economic data to obtain managerial information is demonstrated
Demonstrate the ability to optimise and integrate farming systems	<ul style="list-style-type: none"> • The integration and optimisation of natural resources are explained • The optimisation of infrastructure is explained • The optimisation and maintenance of livestock is explained • A harvesting system is developed

	<ul style="list-style-type: none"> • Post harvest systems are developed
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3. ***Agricultural Practices***

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Ensure sound utilisation of agricultural resources	<ul style="list-style-type: none"> • The modification of agricultural equipment is explained. • The determination of specifications of equipment is explained. • A maintenance and storage plan is developed. • Safety policies are explained. • The development of task related technology in the agricultural environment is explained. • A replacement policy is developed.
Describe the process of optimisation of water quality in an agricultural production system	<ul style="list-style-type: none"> • The characteristics of an optimised water system are described. • Solutions are provided to water quality problems. • The calibration and utilisation of water quality monitoring equipment is demonstrated. • The management of infrastructure related to water quality is explained.
Develop, implement and optimise a management system for food safety and quality practices in an agricultural supply chain	<ul style="list-style-type: none"> • Implement and manage a food safety and quality management system in respect of food safety, production, environmental and social practices in the agricultural environment which meets market requirements in the agricultural supply chain. • Evaluate, take corrective action and make improvements to ensure the effectiveness/efficiency of the food safety and quality management system with regard to good agricultural practices (GAP) good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP), whichever is applicable to the workplace. • A traceability system for operational efficiency in the agricultural supply chain is designed.

<p>Incorporate an understanding of the importance of natural resource management in relation to agricultural practices into the design of a natural resource management plan of the farm in relation to area wide planning and when participating in area wide planning and local government structures and policies.</p>	<ul style="list-style-type: none"> • Integrated natural resource management practices and plans to combat environmental degradation and deterioration are designed • Innovative natural resource management practices to ensure the sustainability of an agricultural endeavour are introduced. • A natural resource management strategic plan for a farm is developed. • Company/farm policy on natural resource management is determined. • Assist in the development of area wide planning and local government structures and policies.
<p>Assist in determining the most appropriate and sustainable land-use for different parts of the land, supervise the implementation and maintenance of the selected infrastructure and maintain the most appropriate land-use on a farm by continuously assessing the natural resource base.</p>	<ul style="list-style-type: none"> • Information relevant to the natural resources of a site is researched. • Appropriate technology to determine sustainable farm layout and infrastructure placement is identified and used. • Principles of sustainability in terms of the layout and infrastructure placement in an agricultural context are applied. • High and low potential yield areas according to a range of land use options are identified.

4. **Animal Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
<p>Evaluate and manage animals according to specific criteria related to anatomical, physiological, physical and biochemical systems</p>	<ul style="list-style-type: none"> • The anatomical, physiological, physical and biochemical components as well as their interrelated activities are explained. • Symptomatic variations and abnormalities are explained. • Animal production systems are developed based on anatomy, morphology and physiology.
<p>Develop and implement health care, prevention and treatment procedures</p>	<ul style="list-style-type: none"> • The health status of animals is evaluated and described. • Procedures to maintain animal disease prevention programmes are explained.
<p>Develop a strategic animal nutrition plan</p>	<ul style="list-style-type: none"> • The metabolism of nutrients is described. • The principles of nutrient requirements are described. • The application of feed formulation principles is explained. • Analysis of ingredients in feed is explained.

	<ul style="list-style-type: none"> • Feed analysis if explained. • Feed flow management is explained.
Demonstrate the ability to apply an advanced breeding and selection practices and to integrate these practices into a breeding management programme.	<ul style="list-style-type: none"> • The integration of advanced breeding practices into a breeding programme is explained. • Advanced selection methods are explained. • Fertility and pregnancy diagnosis is explained. • The components of a sustainable breeding programme are explained.
Demonstrate the ability to guide and direct others during the harvesting of animal products	<ul style="list-style-type: none"> • Principles related to the production of animal products are explained. • The effects of harvesting on animals are explained. • New opportunities in the harvesting of animal products are identified. • The processes and systems of harvesting are explained. • The management of animals to be harvested is explained.
Demonstrate the ability to meaningfully and purposefully dissect animals	<ul style="list-style-type: none"> • Humane animal killing techniques are demonstrated. • The use of dissection equipment is demonstrated. • Various components to be dissected are described. • The dissection of a specific animal is described and demonstrated.

NOTE: Assessment should be specific to the area of operation (i.e. Either large livestock, small livestock, pigs, poultry, etc.).

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Diploma in Agriculture (General cross-sector qualification) in an animal production context. Packaging of the AQF qualification

reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is partly comparable to a NZNQF National Diploma in Agribusiness Management (Level 5) in an animal production context as well as with a National Diploma in Animal handling (Level 5). It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: This qualification is comparable with the BTEC National Award/Diploma in Agriculture courses.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in animal production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as abalone, fish, ostriches, etc.) and/or system such as permaculture, organic production, etc.
- Technical competence in animal production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Animal Husbandry include but are not limited to:

- Small stock production,
- Large stock production,
- Dairy production,
- Pig production,
- Poultry production,
- Game,
- Aqua / mari culture,
- Commercial insects
- Animal fibres harvesting,
- Bee keeping,
- Natural resources harvesting
- Organic production,
- Perma-culture production,
- Eco/Agri Tourism,
- Agro Chemicals,
- Horse Breeding,
- Etc.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Plant Production, NQF 4;

This qualification builds on the relevant qualification on NQF 4 (refer to the SGB’s brief and matrix) and gives access to the a first degree agricultural qualification at NQF 6. In terms of competencies, the learner will progress from basic managerial skills to skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, marketing and selling of agricultural pharmaceutical products and fertilisers. The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Diploma In Animal Production, NQF Level 5

FUNDAMENTAL

A minimum of 48 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
8974	Engage in sustained oral communication and evaluate spoken texts	4	5
8975	Read, analyse and respond to a variety of texts	4	5
8979	Use language and communication in occupational learning programmes	4	5
8976	Write for a wide range of contexts	4	5
	total		20

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
12417	Measure, estimate & calculate physical quantities & explore, critique & prove geometrical relationships in 2 and 3 dimensional space in the life and workplace of adult with increasing responsibilities	4	4
7483	Solve problems involving sequences and series in real and simulated situations	4	4
7468	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2
7470	Work with a wide range of patterns and inverses of functions and solve related problems	4	6
	total		16

AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Develop and Manage a Data Collection Plan to Support an Agricultural Enterprise	5	4
New	Integrate Sustainable Systems Into Planning and Management Processes	5	8

CORE

159 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Manage an input chain.	5	6
New	Develop a production and strategic plan for the agribusiness.	5	10
New	Integrate marketing plan with the business process.	5	10
New	Analyse and interpret the financial statements and physical records in an agribusiness to generate managerial information.	5	10
New	Implement and manage human resource and labour relations policies and acts.	5	8
New	Optimise and integrate various farming systems and trends within related enterprises.	5	10

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Develop and implement a food safety and quality management system in an agricultural supply chain.	5	7
New	Optimise water quality.	5	6
New	Design a natural resource management plan.	5	8
New	Planning a farm and selecting a site.	5	9
New	Manage and control resources in a sustainable manner.	5	5

ANIMAL PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Evaluate animal anatomy and physiology.	5	10
New	Apply and plan animal nutrition.	5	12
New	Integrate sustainable breeding and selection methods.	5	10
New	Harvest animal products: Animal product systems.	5	9
New	Evaluate animal health systems.	5	8
New	Investigate life threatening hazards when handling animals.	5	8
New	Understand juvenile animal rearing	5	8
New	Dissect animals.	5	5

ELECTIVE

A minimum of 33 credits should be achieved in Elective, depending on the context of application or on the combination of the unit standards:

FIELDS OF SPECIALISATION: SMALL/LARGE STOCK PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New SETASA	Control feedlot production unit.	4	32
New	Effective and responsible control of problem animals.	5	8

FIELDS OF SPECIALISATION: DAIRY PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Manage dairy production systems	5	10

FIELDS OF SPECIALISATION: PIG PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Apply advanced pig husbandry practices.	4	5

FIELDS OF SPECIALISATION: BEE KEEPING			
NLRD	TITLE	LEVEL	CREDIT
New	Manage hive placement and bee keeping.	5	2

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	The optimisation of agri/eco tourism strengths and opportunities and negation of threats and weaknesses.	5	6

**National Diploma In Animal Production, NQF Level 5
Unit Standards, NQF5**

Title: DEVELOP AND MANAGE A DATA COLLECTION PLAN TO SUPPORT AN AGRICULTURAL ENTERPRISE

Specific Outcome 1: Select appropriate experimental designs as required by the agricultural enterprise.

Specific Outcome 2: Manage the implementation of data collection plans.

Specific Outcome 3: Interpret data collection reports and make recommendations based on findings.

Specific Outcome 4: Manage a data gathering team.

Title: INTEGRATE SUSTAINABLE SYSTEMS INTO PLANNING AND MANAGEMENT PROCESSES

Specific Outcome 1: Demonstrate understanding of “hard” (biophysical) and “soft” (human) systems.

Specific Outcome 2: Demonstrate an understanding of the concept of sustainability as a trade-off between productivity and the conservation of resources.

Specific Outcome 3: Use the systems approach to design interactive soil, plant and animal management.

Specific Outcome 4: Monitor and re-evaluate sustainability of whole farming systems.

Specific Outcome 5: Develop a comprehensive plan for a whole farming system.

Title: MANAGE AN INPUT CHAIN

Specific Outcome 1: Plan the flow chain of agricultural inputs.

Specific Outcome 2: Implement a plan on the flow of agricultural inputs.

Specific Outcome 3: Schedule Human Resources to attend to inputs.

Specific Outcome 4: Evaluate and resolve eventualities that emerge during the flow of agricultural inputs.

Specific Outcome 5: Give accurate reports on the agricultural input flow chain.

Title: DEVELOP A PRODUCTION AND STRATEGIC PLAN FOR THE AGRICULTURAL BUSINESS

Specific Outcome 1: Gather intelligence, information and data related to production processes, technology and markets in agriculture.

Specific Outcome 2: Evaluate the influence that market trends have on the production process in the agricultural business environment.

Specific Outcome 3: Evaluate the influence that technology has on the production process in the agricultural business environment.

Specific Outcome 4: Develop a strategic production plan..

Specific Outcome 5: Develop and implement a strategic plan.

Title: INTEGRATE MARKETING PLANS WITH THE BUSINESS PROCESS

Specific Outcome 1: Monitor the marketing environment and determine variables and critical success factors for marketing of all agricultural commodities within the agribusiness.

Specific Outcome 2: Identify and analyse market opportunities for all agricultural commodities in the agribusiness.

Specific Outcome 3: Identify and develop market structures strategies for all agricultural commodities in the agribusiness.

Specific Outcome 4: Integrate the marketing function into the total business plan for all agricultural commodities of an agribusiness.

Title: ANALYSE AND INTERPRET THE FINANCIAL STATEMENTS AND PHYSICAL RECORDS IN AN AGRI-BUSINESS TO GENERATE MANAGERIAL INFORMATION

Specific Outcome 1: Use financial and physical information to compile financial statements and physical data to compile physical records.

Specific Outcome 2: Conduct a proper analysis of the financial statements and physical records of an agri-business.

Specific Outcome 3: Compare financial and economic criteria with historical results and deduct the necessary managerial information.

Specific Outcome 4: Set objectives for the different ratios and do an interpretation of the different ratios.

Title: **IMPLEMENT AND MANAGE HUMAN RESOURCE AND LABOUR RELATIONS POLICIES AND ACTS**

Specific Outcome 1: Be responsible for the development and maintenance of effective human relation policies and practices.

Specific Outcome 2: Be responsible for the drafting of job descriptions, recruitment, selection panels, and employment contracts.

Specific Outcome 3: Be responsible for the institute and facilitation of disciplinary policies, actions and hearings.

Specific Outcome 4: Develop, facilitate and monitor disciplinary policy, process and procedures.

Specific Outcome 5: Institute performance evaluation committees and manage the performance evaluation process.

Specific Outcome 6: Participate in the implementation of applicable labour legislation.

Title: **OPTIMISE AND INTEGRATE VARIOUS FARMING SYSTEMS AND TRENDS WITHIN RELATED ENTERPRISES**

Specific Outcome 1: Optimise and integrate the natural resources required for the relevant farming systems and enterprises.

Specific Outcome 2: Plan and optimise infrastructural requirements for the relevant enterprise system.

Specific Outcome 3: Optimise and maintain stock required for the relevant enterprises.

Specific Outcome 4: Innovate and plan production systems within relevant enterprises.

Specific Outcome 5: Plan and maintain a harvest system within relevant farming systems and enterprises.

Specific Outcome 6: Plan and maintain post harvest systems within relevant farming enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: **DEVELOP AND IMPLEMENT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN AN AGRICULTURAL SUPPLY CHAIN**

Specific Outcome 1: Analyse existing food safety and quality management systems in the agricultural environment.

Specific Outcome 2: Correctly interpret current market requirements in the agricultural supply chain.

Specific Outcome 3: Develop a food safety and quality management system to meet market requirements within the agricultural supply chain.

Specific Outcome 4: Plan the implementation of the food safety and quality management system in respect of food safety, production and environmental and social practices in the agricultural environment.

Specific Outcome 5: Implement and manage a food safety and quality management system in the agricultural supply chain.

Specific Outcome 6: Evaluate, take corrective action and make improvements to ensure the effectiveness/efficiency of the food safety and quality management system with regard to good agricultural practices (GAP), good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP), whichever is applicable to the workplace.

Specific Outcome 6: Design a traceability system for operational efficiency in the agricultural supply chain.

Title: **OPTIMISE WATER QUALITY**

Specific Outcome 1: Develop, design and optimize water quality systems.

Specific Outcome 2: Demonstrate an ability to devise solutions to water quality management problems.

Specific Outcome 3: Demonstrate a thorough ability to maintain and calibrate all monitoring and adjusting equipment.

Specific Outcome 4: Demonstrate a thorough ability to manage infrastructure related to water quality systems.

Title: DESIGN A NATURAL RESOURCE MANAGEMENT PLAN

Specific Outcome 1: Design integrated natural resource management practices and plans to combat and prevent environmental degradation and deterioration.

Specific Outcome 2: Introduce innovative natural resource management practices to ensure the sustainability of an agricultural endeavour.

Specific Outcome 3: Develop and or update a natural resource management strategic plan for a farm.

Specific Outcome 4: Manage preventative and control measures according to a management plan.

Specific Outcome 5: Determine company/farm policy on natural resource management.

Specific Outcome 6: Assist in the development of area wide planning and local government structures and policies.

Specific Outcome 7: Demonstrate an in-depth knowledge of natural resource management practices and principles.

Title: FARM PLANNING AND SELECTING A SITE

Specific Outcome 1: Identify and use appropriate technology to determine sustainable farm layout and infrastructure placement.

Specific Outcome 2: Identify relevant service providers who can render specific services.

Specific Outcome 3: Research information relevant to the natural resources of a site.

Specific Outcome 4: Implement necessary conservation and natural resource management and harvesting practices.

Specific Outcome 5: Apply the principles of sustainability in terms of the layout and infrastructure placement in an agricultural context.

Title: MANAGE AND CONTROL RESOURCES IN A SUSTAINABLE MANNER

Specific Outcome 1: Modify and/or re-design appropriate equipment and implements to execute a specific agricultural task.

Specific Outcome 2: Set specifications for equipment / implements that will be suitable for a specific task.

Specific Outcome 3: Develop a maintenance and storage plan for implements, equipment and infrastructure.

Specific Outcome 4: Develop and implement safety policies and regulations.

Specific Outcome 5: Develop appropriate task related technology in the agricultural environment.

Specific Outcome 6: Design and manage an appropriate seasonal and/or year work program with reference to equipment, implements and technology.

Specific Outcome 6: Draft a replacement policy with reference to expenditure implications.

ANIMAL PRODUCTION

Title: EVALUATE ANIMAL ANATOMY AND PHYSIOLOGY SYSTEMS

Specific Outcome 1: Identify and understand the structures, composition, physical, biochemical and biological components and their interrelated activities pertaining to the various anatomical systems.

Specific Outcome 2: Identify, understand and evaluate symptomatic variations and abnormalities within animals, in the various anatomical systems and their probable causes.

Specific Outcome 3: Utilise the knowledge about animal anatomy, morphology and physiology to determine opportunities for working with animals.

Specific Outcome 4: Utilise the knowledge about animal anatomy, morphology and physiology to create and develop animal production systems.

Title: APPLY AND PLAN ANIMAL NUTRITION

Specific Outcome 1: Understand the metabolism of nutrient components and factors influencing it.

Specific Outcome 2: Understand the principles of qualifying nutrients requirements.

Specific Outcome 3: Understand evaluation criteria for feed ingredients.

Specific Outcome 4: Understand and apply feed formulation principles.

Specific Outcome 5: Calculate feeding levels for different animal categories.

Specific Outcome 6: Understand and determine quality control and corrective measures in feed conservation.

Specific Outcome 7: Interpret analysis of ingredients and feeds.

Specific Outcome 8: Interpret feed evaluation results for use in animal production and feed flow management.

Title: INTEGRATE SUSTAINABLE BREEDING AND SELECTION METHODS

Specific Outcome 1: Integrate advanced breeding practices into a breeding management programme.

Specific Outcome 2: Combine advanced selection methods into a breeding management programme.

Specific Outcome 3: Incorporate the use of fertility and pregnancy diagnosis into a breeding management programme.

Specific Outcome 4: Develop and manage a sustainable breeding management programme.

Title: HARVEST ANIMAL PRODUCTS: ANIMAL PRODUCTION SYSTEMS

Specific Outcome 1: Understand and identify all principles related to animal product production.

Specific Outcome 2: Identify and understand animal production systems and the effects of harvesting animal products on the animal and on the product.

Specific Outcome 3: Identify and utilise opportunities in the animal product production environment that will allow the production and processing of animal products.

Specific Outcome 4: Understand and implement processes and systems that will allow for the harvesting and processing of animal products.

Specific Outcome 5: Identify, understand and implement specific management of animals to produce products of constant quality and quantity for harvesting and processing.

Title: EVALUATE ANIMAL HEALTH SYSTEMS

Specific Outcome 1: Evaluate the health of animals.

Specific Outcome 2: Develop, implement and maintain animal disease prevention and management procedures.

Specific Outcome 3: Develop, implement and maintain animal disease treatment procedures and management procedures.

Specific Outcome 4: Assist with the development of animal disease prevention and treatment and production systems.

Title: INVESTIGATE LIFE THREATENING HAZARDS WHEN HANDLING ANIMALS

Specific Outcome 1: Understand and identify all principles related to animal behaviour.

Specific Outcome 2: Identify and understand animal behaviour systems and the effects of inappropriate management on the animal resulting in defensive behaviour.

Specific Outcome 3: Identify and utilise resources that will allow the safe containment and shelter of animals.

Specific Outcome 4: Understand and implement processes and systems that will show an understanding of the causes and effects of defensive behaviour.

Specific Outcome 5: Identify, understand and implement specific management systems to allow for safe animal confinement in the event of defensiveness.

Specific Outcome 6: Be in a position to develop and manage programmes which cater for the treatment of injured animals and their human managers.

Title: UNDERSTAND JUVENILE ANIMAL REARING

Specific Outcome 1: Demonstrate full understanding of use and care or maintenance of all equipment used in the nursery.

Specific Outcome 2: Demonstrate the ability to plan and integrate systems to effect juvenile animal rearing.

Specific Outcome 3: Posses a detailed knowledge of the biology of the species including reproduction.

Specific Outcome 4: Have complete knowledge of the feeding requirements of the juvenile animal species.

Specific Outcome 5: Have full knowledge of and follow strict procedures for the rearing phases and be able to trouble shoot abnormalities.

Specific Outcome 6: Know and apply correct hygiene procedures for the whole facility.

Title: DISSEST ANIMALS

Specific Outcome 1: Demonstrate the understanding and use of humane animal killing techniques and methods.

Specific Outcome 2: Demonstrate the use and understanding of how to use dissection equipment and implements.

Specific Outcome 3: Demonstrate the use and understanding of how to use dissection equipment and implements.

Specific Outcome 4: Demonstrate knowledge of what is to be dissected.

Specific Outcome 5: Demonstrate knowledge of how to dissect a specific animal type.

ELECTIVE

Title: EFFECTIVE AND RESPONSIBLE CONTROL OF PROBLEM ANIMALS

Specific Outcome 1: Identify the natural behaviour of problem animals causing erosion.

Specific Outcome 2: Distinguish between various control practices applied to problem animals causing erosion on farms.

Specific Outcome 3: Selection of the relevant control practices for controlling various problem animals causing erosion on farms.

Specific Outcome 4: Post control practices of problem animals.

Title: MANAGE DAIRY PRODUCTION SYSTEMS

Specific Outcome 1: Demonstrate planning and budgeting processes relative to Dairy Production.

Specific Outcome 2: Direct operations in the milking parlour.

Specific Outcome 3: Manage the herd production cycle.

Specific Outcome 4: Manage the feeding program.

Specific Outcome 5: "Trouble shoot" and take corrective action.

Title: MANAGE HIVE PLACEMENT AND BEE POLLINATION

Specific Outcome 1: Understand and identify the botanical systems of agricultural and environmental plants related to reproductive biology and pollination.

Specific Outcome 2: Identify and understand plant production systems and the effects of bees on production and the subsequent pollination efficacy in bees.

Specific Outcome 3: Identify and utilise opportunities in the plant production environment that will allow the placement of bees for pollination services.

Specific Outcome 4: Understand and implement the logistical systems related to pollination services.

Specific Outcome 5: Identify, understand and implement specific management of bees to effect efficient and effective pollination services, depending on the target plants requiring insect pollination.

Title: **THE OPTIMISATION OF AGRI / ECOTOURISM STRENGTHS AND OPPORTUNITIES AND NEGATION OF THREATS AND WEAKNESSES**

Specific Outcome 1: Collate strategic inputs from all relevant information sources into a strategic/business plan.

Specific Outcome 2: Disseminate action plan(s) to the operational level of the Agri/Ecotourism business.

Specific Outcome 3: Implement the action plans.

Specific Outcome 4: Monitor and evaluate the strategic plan for all components in successful Agri / Ecotourism business.



LEVEL 5.2

National Diploma In Plant Production, NQF Level 5

Registration Number:

Field: Agriculture And Nature Conservation

Sub-Field: Primary Agriculture

Level: 5

Credits: 240

Issue Date:

Review Date:

RATIONALE:

The range of typical learners that will enter this qualification will vary and includes:

- Junior farm managers who wish to progress to the level of farm manager;
- Learners in possession of different levels of practical experience in farming operations, which will be assessed and RPL'ed;
- School leavers (Grade 12); and
- Learners may come from both genders.

The learner will engage in farm management and operational activities relevant to Plant Production.

Requests and expressions of need for this qualification, coming from the broad, but also specific farming communities (Plant Production) forms the basis for the development of this qualification.

This qualification will form the basis for learners to extend their learning into more specialised areas of plant production and management and provides the basis of the establishment of sustainable farming operations through the inclusion of a wide spectrum of competencies required by farmers in South Africa. Whilst technical

production orientated competencies are ensured, other aspects such as agri-business and good agricultural practices are included in the range of competencies required by farmers in order to enable them to strive towards agricultural management standards and practices at higher levels.

Competent qualifying learners in this qualification will oversee quality agricultural products in Plant Production whereby enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

PURPOSE:

The purpose of this qualification is to allow Junior Farm Managers to progress towards a Farm Manager position with specific reference to Plant Production. The contextualised purpose and usage of the qualification is as follows:

- A learner assessed against this qualification will have the necessary competence to monitor, implement, co-ordinate, plan, control and provide leadership regarding the agricultural processes as applicable to Plant production in a variety of Plant Production processes taking responsibility for the nature, quality and quantity of outputs.
- The Learner will be able to take complete responsibility for her/his own actions and also take responsibility for the achievements of groups within a Plant Production context.
- Competency will be gained in any of the specialized sub-fields of Plant Production as specified under **Areas Of Specialization** (i.e. Vegetables, Fruit Production, Hydroponics, etc.) with a strong focus on management.
- The learner will be able to take responsible decisions within a wide range of familiar and un-familiar contexts based on a sound understanding of the basic principles of agri-business and good agricultural practices, in meeting the set objectives and targets within the broader farm plan which includes the economical application of general resources, agricultural production and technical knowledge and skills, all in an Plant Production context.
- The Learner will be able to select from a wide range of standard and non-standard procedures in Plant Production and will be able to ensure the relevant safety, quality, hygiene and technical standards as applicable within the industry.
- In addition to the above, the learner will be well positioned to extend learning and practice into other sub-fields such as Plant Production and Mixed Farming, since such efforts will only require additional learning within the elective scope of other qualifications at this level.
- The learner will be well positioned to progress towards higher levels of Management and Technical production practices as defined by qualifications at the next level.
- Learners will be enabled to actively participate in the Primary Agricultural Sector through the production of quality agricultural products, enhancing the overall agricultural process and gain opportunities to access local, national and international agricultural markets.

- This qualification will allow qualifying learners to become economically active in farming practices that will have a direct impact on Local Economic Development through the production of food, the improvement of household food security and access to mainstream agriculture.
- Finally, Learners will be able to guide and direct project teams in terms of the planning, implementation and control of development projects within a Plant Production context.

ACCESS TO THE QUALIFICATION:

Open access.

ASSUMPTIONS OF LEARNING:

It is assumed that a learner entering a programme leading to this qualification has achieved numeracy, literacy and communication equivalent to NQF 4 and technical skills pertaining to agricultural activities equivalent to NQF 4.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA:

Exit Level Outcomes are divided into four categories of competencies, namely:

- Fundamental Competencies
- Agri-business
- Good Agricultural Practices
- Plant Production

The ELO's for each category is described separately.

1. Fundamental Competencies

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Apply communication skills in an agricultural environment.	<ul style="list-style-type: none"> • Simple presentations are made. • Situations, reasons, implications, concepts, underlying principles, and check for understanding and adjust message are explained. • Conditions, situations and events, using data are reported on. • Work instructions are given. • Events, situations and conditions are summarised over time.
Apply mathematical calculations within the agricultural environment.	<ul style="list-style-type: none"> • Data is represented in graph and table form. • Trends are plotted. • Percentages from collected data (statistical calculations) are determined. • Measurements are accurately. • Calculations per area performed.

	<ul style="list-style-type: none"> Financial implications of personal and business related issues are investigated and monitored. Ratios are determined according to prescribed parameters e.g. mixtures, crops.
Develop a data collection plan in the agricultural sector	<ul style="list-style-type: none"> Appropriate experimental designs are selected for a specific purpose. The implementation of data collection plans is described. Data collection reports are interpreted and recommendations are made. Guidance is provided to data gathering team.
Integrate sustainable systems thinking into planning and management processes	<ul style="list-style-type: none"> A whole farming system is developed. Methods of systems thinking are applied in the design of soil, plant and animal management. The sustainability of whole farming systems is monitored and re-evaluated.

2. *Agri-business*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Control an agricultural input chain.	<ul style="list-style-type: none"> Planning of a flow chain is described. A plan on the flow of agricultural inputs is prepared and implemented. Aspects of HR management related to the flow chain are described.
Develop a strategic plan for agri-processing activities.	<ul style="list-style-type: none"> Market trends are analysed. Trends in technology are analysed. A production plan is developed.
Describe the integration of the marketing component as a part of the total agri-business	<ul style="list-style-type: none"> Variables and critical success factors are determined for agri-business. Market opportunities are identified and analysed. Marketing strategies are developed. The marketing function as part of the business plan is explained.
Analyse and interpret financial information in an agri-business	<ul style="list-style-type: none"> The use of physical and financial information to compile financial statements is demonstrated. The analysis of financial statements and physical records is demonstrated. A comparison of financial and economic data to obtain managerial information is demonstrated.
Demonstrate the ability to optimise and integrate farming	<ul style="list-style-type: none"> The integration and optimisation of natural resources are explained.

systems.	<ul style="list-style-type: none"> • The optimisation of infrastructure is explained. • The optimisation and maintenance of livestock is explained. • A harvesting system is developed. • Post harvest systems are developed.
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3. *Agricultural Practices*

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Ensure sound utilisation of agricultural resources.	<ul style="list-style-type: none"> • The modification of agricultural equipment is explained. • The determination of specifications of equipment is explained. • A maintenance and storage plan is developed. • Safety policies are explained. • The development of task related technology in the agricultural environment is explained. • A replacement policy is developed.
Describe the process of optimisation of water quality in an agricultural production system.	<ul style="list-style-type: none"> • The characteristics of an optimised water system are described. • Solutions are provided to water quality problems. • The calibration and utilisation of water quality monitoring equipment is demonstrated. • The management of infrastructure related to water quality is explained.
Develop, implement and optimise a management system for food safety and quality practices in an agricultural supply chain	<ul style="list-style-type: none"> • Implement and manage a food safety and quality management system in respect of food safety, production, environmental and social practices in the agricultural environment which meets market requirements in the agricultural supply chain. • Evaluate, take corrective action and make improvements to ensure the effectiveness/efficiency of the food safety and quality management system with regard to good agricultural practices (GAP) good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP), whichever is applicable to the workplace. • A traceability system for operational efficiency in the agricultural supply chain is designed.

Incorporate an understanding of the importance of natural resource management in relation to agricultural practices into the design of a natural resource management plan of the farm in relation to area wide planning and when participating in area wide planning and local government structures and policies.	<ul style="list-style-type: none"> • Integrated natural resource management practices and plans to combat environmental degradation and deterioration are designed. • Innovative natural resource management practices to ensure the sustainability of an agricultural endeavour are introduced. • A natural resource management strategic plan for a farm is developed. • Company/farm policy on natural resource management is determined. • Assist in the development of area wide planning and local government structures and policies.
Assist in determining the most appropriate and sustainable land-use for different parts of the land, supervise the implementation and maintenance of the selected infrastructure and maintain the most appropriate land-use on a farm by continuously assessing the natural resource base.	<ul style="list-style-type: none"> • Information relevant to the natural resources of a site is researched. • Appropriate technology to determine sustainable farm layout and infrastructure placement is identified and used. • Principles of sustainability in terms of the layout and infrastructure placement in an agricultural context are applied. • High and low potential yield areas according to a range of land use options are identified.

4. **Plant Production**

On achieving this qualification the learner will be able to:

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
Describe the basic biochemistry involved in the physiological processes of a plant.	<ul style="list-style-type: none"> • The role of carbon compounds and ground rules of plant metabolism is explained. • The movement of solutes and water in a plant is explained. • The pathways of photosynthesis are explained. • Respiration pathways are described. • The role of hormones during plant growth is described. • The responses of plants to the environment are explained.
Develop a soil fertility and plant nutrition plan.	<ul style="list-style-type: none"> • Soil and leaf analysis is interpreted and explained. • A soil utilisation plan is developed. • The development of a soil database is explained. • A soil systems management strategy is described.
Plants are propagated in any production system.	<ul style="list-style-type: none"> • The appropriate propagation environments for a variety of plants are described.

	<ul style="list-style-type: none"> • The application of basic tissue culture is explained. • Different propagation processes is explained. • Problems related to propagation are described.
Implement and co-ordinate different harvesting plans	<ul style="list-style-type: none"> • The implementation of alternative and new harvesting tools and equipment is described. • The maturity indexing process is described. • The co-ordination of the harvesting of different crops is described. • Health, hygiene and safety procedures is explained. • The co-ordination of waste disposal is explained.

Identify, monitor and control pests, monitor beneficial arthropods, plant disease symptoms and weeds in a responsible manner by applying Integrated Pest Management Principles to conserve the environment.	<ul style="list-style-type: none"> • Common insects, disease symptoms and weeds or know where to have those that are not common are recognized and identified. • An understanding of the basic principles of integrated pest management with basic control measures as per agricultural enterprise, is demonstrated. • Recognize and identify pests and beneficials on specific crops (all crops), count and monitor pest population levels over time, as well as the occurrence of beneficials over time, and determine when the threshold is reached. • Formulate a decision, suitable control method with reference to product information, make recommendations for application, selection of alternative compounds within a resistance management strategy with notice of occurring weather patterns, water quality, soil composition, adjuvants and/or other chemical or product requirements.
Develop a plant manipulation management plan and manage its implementation to maximise growth and yield.	<ul style="list-style-type: none"> • Plant manipulation needs are incorporated into a plant manipulation management plan. • Framework development principles are incorporated into a plant manipulation management plan. • Flower and fruit manipulation practices are evaluated and optimized. • The implementation of the pruning principles as vegetative plant manipulation methods appropriate to the crop are planned.

NOTE: Assessment should be specific to the area of operation (i.e. Either horticulture or agronomy including but not limited to arable and/or dry land production).

INTERNATIONAL COMPARABILITY:

In the case of the primary agriculture context it is difficult to compare the qualification and unit standards against similar international qualifications due to the vast differences in levels of mechanization and literacy of farm operators. It should also be noted that climatic and market conditions differ considerably between South Africa and other countries and the variety in commodities is therefore significant.

This qualification and associated unit standards have been evaluated against comparable qualifications and unit standards of the following Qualifications Authorities:

- Australian AQF
- New Zealand NQF, and
- British NVQ's.

During this comparison the following was found:

Australian AQF: This qualification is comparable to an AQF Diploma in Agriculture (General cross-sector qualification) in a plant production context. Packaging of the AQF qualification reflects the need for sector specific content of a qualification to remain flexible, a quality that has also been captured in this qualification. The AQF qualification requires the inclusion of Units of Competency, similar to the unit standards reflected in the South African qualification. It should however be noted that the qualification of the AQF contains considerably more Elective type Units of Competency since these units have been developed for specific sub-fields. In the case of this qualification a more generic approach have been followed, allowing contextualisation of fewer unit standards across a wide range of sub-fields. It could be concluded that there are numerous similarities between the Units of Competency and the Unit Standards reflected in the SA qualification covering similar sub-fields.

New Zealand NQF: This qualification is partly comparable to a NZNQF National Diploma in Agribusiness Management (Level 5) in a plant production context as well as with a National Diploma in Horticulture (Level 6). It should be noted that the NZQF qualification has been developed for a specific sub-field of specialization whilst a more generic approach is taken in this qualification allowing for contextualisation of the qualification across a wider range of sub-fields. In the NZQF qualification focus is given to local conditions, practices and approaches to agriculture whilst this qualification focuses on agriculture within a South African context.

British NVQ: This qualification is comparable with the BTEC National Award/Diploma in Agriculture courses.

Furthermore, input to the development of this qualification has been compared against international standards and qualifications and is evidenced in the following:

- Qualifications and competency units as defined by the New South Wales Department of Education and Training.
- The wide and narrow consultative process as well as the contributions made by role players from Universities and Technicians whom have a specific requirement for internationally comparable qualifications.

INTEGRATED ASSESSMENT:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across unit standards to achieve competence that is relevant and coherent in relation to the purpose of the qualification.

Integrated assessment must judge the quality of the observable performance, but also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will be of a more practical nature while others will be of a more theoretical nature. The ratio between action and interpretation is not fixed, but varies according to the type and level of qualification.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

GENERIC NATURE OF THE UNIT STANDARDS AND THE CONTEXT OF ASSESSMENT:

Because of the diverse nature of the primary agricultural sector, a generic approach to developing the unit standards has been adopted. This resulted in generic unit standards which should be contextualised within a specific area of operation, a specific agricultural commodity or specific agricultural system. Assessment therefore, should not be divorced from the context of application. All assessment tools, such as guides as well as the interpretation of unit standards and specifically range statements, should be contextualised within a specific agricultural commodity and/or system.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need:

- A minimum of 2 (two) years' practical experience in agricultural plant production practices relevant to an area of specialisation mentioned below;
- Practical experience in the specific agricultural commodity (which might include the list of "Areas of Specialisation" mentioned below or a specific commodity such as deciduous fruit, agronomic crop, sugar cane, vegetables, etc.) and/or system such as permaculture, organic production, hydroponic, etc.
- Technical competence in agricultural plant production practices at, at least one NQF level above the assessee.

AREAS OF SPECIALISATION:

Areas of specialisation of the qualification in Plant Production include but are not limited to:

- Organic production,
- Hydroponic production,
- Perma-culture production,
- Agronomy,

- Horticulture,
- Natural resources harvesting.

RECOGNITION OF PRIOR LEARNING:

This qualification may be achieved in part or in whole through the recognition of prior learning. Credit will be given to learning, which has already been acquired, through the appropriate process of assessment.

For example:

- Learners who have acquired skills and competencies in this qualification through for instance experience in the industry will be assessed against the unit standards the qualification comprises of prior to entering learning. Credits will be allocated to those unit standards and exit level outcomes in which the learner is found competent. The outstanding unit standards will then be sequenced according to an appropriate learning programme.
- Should a new entrant into the industry wish to enter this learning programme, recognition will be given to all appropriate learning acquired through the schooling system.
- In terms of fundamental unit standards, competencies could be acquired through life experience.

Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to take.

ARTICULATION POSSIBILITIES:

A learner will be able to progress horizontally from one category to another, namely small stock, large stock or pig production, etc. (Please refer to the list mentioned under “Areas of Specialisation”) He/she will be able to do this without re-doing the whole qualification, but by only completing the necessary elective unit standards.

Furthermore, the learner will be able to progress horizontally to the following qualifications:

- National Certificate in Animal Production, NQF 5.

This qualification allows access to the agricultural sector (refer to the SGB’s brief and matrix) and gives access to the relevant agricultural qualification at NQF 6.

In terms of competencies, the learner will progress from farming operation skills to basic managerial skills to managerial skills. The scope of practice will also increase.

The learner will be able to articulate with other occupations within the agricultural pharmaceutical operations such as laboratory assistant, assistance in the marketing and selling of agricultural pharmaceutical products and fertilisers. The learner will also be able to move to the secondary agricultural field.

MODERATION:

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this qualification, or assessment against this qualification must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to agreed ETQA procedures.

Therefore anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution which is accredited by the relevant ETQA.

QUALIFICATION MATRIX

National Diploma In Plant Production, NQF Level 5

FUNDAMENTAL

A minimum of 48 credits should be achieved in fundamental. All unit standards listed below are compulsory.

COMMUNICATION			
NLRD	TITLE	LEVEL	CREDIT
8974	Engage in sustained oral communication and evaluate spoken texts	4	5
8975	Read, analyse and respond to a variety of texts	4	5
8979	Use language and communication in occupational learning programmes	4	5
8976	Write for a wide range of contexts	4	5
	total		20

MATH LITERACY			
NLRD	TITLE	LEVEL	CREDIT
12417	Measure, estimate & calculate physical quantities & explore, critique & prove geometrical relationships in 2 and 3 dimensional space in the life and workplace of adult with increasing responsibilities	4	4
7483	Solve problems involving sequences and series in real and simulated situations	4	4
7468	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2
7470	Work with a wide range of patterns and inverses of functions and solve related problems	4	6

	total		16
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AGRICULTURE SPECIFIC			
NLRD	TITLE	LEVEL	CREDIT
New	Develop and Manage a Data Collection Plan to Support an Agricultural Enterprise	5	4
New	Integrate Sustainable Systems Into Planning and Management Processes	5	8

CORE

155 credits should be achieved in core. The learner must achieve all of the following:

AGRICULTURAL BUSINESS			
NLRD	TITLE	LEVEL	CREDIT
New	Manage an input chain.	5	6
New	Develop a production and strategic plan for the agribusiness.	5	10
New	Integrate marketing plan with the business process.	5	10
New	Analyse and interpret the financial statements and physical records in an agribusiness to generate managerial information.	5	10
New	Implement and manage human resource and labour relations policies and acts.	5	8
New	Optimise and integrate various farming systems and trends within related enterprises.	5	10

GENERIC AGRICULTURAL PRACTICES			
NLRD	TITLE	LEVEL	CREDIT
New	Develop and implement a food safety and quality management system in an agricultural supply chain.	5	7
New	Optimise water quality.	5	6
New	Design a natural resource management plan.	5	8
New	Planning a farm and selecting a site.	5	9
New	Manage and control resources in a sustainable manner.	5	5

PLANT PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Describe biological processes in plant physiology.	5	9

New	Manage soil systems.	5	10
New	Develop a propagation plan for any agricultural production system.	5	9
New	Develop suitable irrigation systems.	5	10
New	Develop and implement plant manipulation methods.	5	8
New	Apply integrated pest management principles.	5	10
New	Manage the harvesting process of agricultural crops.	5	10

ELECTIVE

A minimum of 37 credits should be achieved in Elective, depending on the context of application of the unit standards:

FIELD OF SPECIALISATION: SUSTAINABLE HARVESTING OF NATURAL RESOURCES			
NLRD	TITLE	LEVEL	CREDIT
New	Evaluate and coordinate area wide sustainable wild flower harvesting.	5	8

FIELD OF SPECIALISATION: PERMA-CULTURE PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Develop, implement and manage a permaculture site design.	5	10

FIELDS OF SPECIALISATION: ECO/AGRI TOURISM			
NLRD	TITLE	LEVEL	CREDIT
New	The optimisation of agri/eco tourism strengths and opportunities and negation of threats and weaknesses.	5	6

FIELD OF SPECIALISATION: AGRO-CHEMICALS			
NLRD	TITLE	LEVEL	CREDIT
New	The effective and responsible aerial application of agrochemical products.	5	14
New	Effective and responsible advice, recommendation and sale of agrochemical products.	6	12

FIELD OF SPECIALISATION: HYDROPONIC PRODUCTION			
NLRD	TITLE	LEVEL	CREDIT
New	Manage a hydroponic production unit.	5	10

National Diploma In Plant Production, NQF Level 5

Unit Standards, NQF 5

Title: DEVELOP AND MANAGE A DATA COLLECTION PLAN TO SUPPORT AN AGRICULTURAL ENTERPRISE

Specific Outcome 1: Select appropriate experimental designs as required by the agricultural enterprise.

Specific Outcome 2: Manage the implementation of data collection plans.

Specific Outcome 3: Interpret data collection reports and make recommendations based on findings.

Specific Outcome 4: Manage a data gathering team.

Title: INTEGRATE SUSTAINABLE SYSTEMS INTO PLANNING AND MANAGEMENT PROCESSES

Specific Outcome 1: Demonstrate understanding of “hard” (biophysical) and “soft” (human) systems.

Specific Outcome 2: Demonstrate an understanding of the concept of sustainability as a trade-off between productivity and the conservation of resources.

Specific Outcome 3: Use the systems approach to design interactive soil, plant and animal management.

Specific Outcome 4: Monitor and re-evaluate sustainability of whole farming systems.

Specific Outcome 5: Develop a comprehensive plan for a whole farming system.

Title: MANAGE AN INPUT CHAIN

Specific Outcome 1: Plan the flow chain of agricultural inputs.

Specific Outcome 2: Implement a plan on the flow of agricultural inputs.

Specific Outcome 3: Schedule Human Resources to attend to inputs.

Specific Outcome 4: Evaluate and resolve eventualities that emerge during the flow of agricultural inputs.

Specific Outcome 5: Give accurate reports on the agricultural input flow chain.

Title: DEVELOP A PRODUCTION AND STRATEGIC PLAN FOR THE AGRICULTURAL BUSINESS

Specific Outcome 1: Gather intelligence, information and data related to production processes, technology and markets in agriculture.

Specific Outcome 2: Evaluate the influence that market trends have on the production process in the agricultural business environment.

Specific Outcome 3: Evaluate the influence that technology has on the production process in the agricultural business environment.

Specific Outcome 4: Develop a strategic production plan..

Specific Outcome 5: Develop and implement a strategic plan.

Title: INTEGRATE MARKETING PLANS WITH THE BUSINESS PROCESS

Specific Outcome 1: Monitor the marketing environment and determine variables and critical success factors for marketing of all agricultural commodities within the agribusiness.

Specific Outcome 2: Identify and analyse market opportunities for all agricultural commodities in the agribusiness.

Specific Outcome 3: Identify and develop market structures strategies for all agricultural commodities in the agribusiness.

Specific Outcome 4: Integrate the marketing function into the total business plan for all agricultural commodities of an agribusiness.

Title: ANALYSE AND INTERPRET THE FINANCIAL STATEMENTS AND PHYSICAL RECORDS IN AN AGRIBUSINESS TO GENERATE MANAGERIAL INFORMATION

Specific Outcome 1: Use financial and physical information to compile financial statements and physical data to compile physical records.

Specific Outcome 2: Conduct a proper analysis of the financial statements and physical records of an agri-business.

Specific Outcome 3: Compare financial and economic criteria with historical results and deduct the necessary managerial information.

Specific Outcome 4: Set objectives for the different ratios and do an interpretation of the different ratios.

Title: IMPLEMENT AND MANAGE HUMAN RESOURCE AND LABOUR RELATIONS POLICIES AND ACTS

Specific Outcome 1: Be responsible for the development and maintenance of effective human relation policies and practices.

Specific Outcome 2: Be responsible for the drafting of job descriptions, recruitment, selection panels, and employment contracts.

Specific Outcome 3: Be responsible for the institute and facilitation of disciplinary policies, actions and hearings.

Specific Outcome 4: Develop, facilitate and monitor disciplinary policy, process and procedures.

Specific Outcome 5: Institute performance evaluation committees and manage the performance evaluation process.

Specific Outcome 6: Participate in the implementation of applicable labour legislation.

Title: OPTIMISE AND INTEGRATE VARIOUS FARMING SYSTEMS AND TRENDS WITHIN RELATED ENTERPRISES

Specific Outcome 1: Optimise and integrate the natural resources required for the relevant farming systems and enterprises.

Specific Outcome 2: Plan and optimise infrastructural requirements for the relevant enterprise system.

Specific Outcome 3: Optimise and maintain stock required for the relevant enterprises.

Specific Outcome 4: Innovate and plan production systems within relevant enterprises.

Specific Outcome 5: Plan and maintain a harvest system within relevant farming systems and enterprises.

Specific Outcome 6: Plan and maintain post harvest systems within relevant farming enterprise.

GENERIC AGRICULTURAL PRACTICES

Title: **DEVELOP AND IMPLEMENT A FOOD SAFETY AND QUALITY MANAGEMENT SYSTEM IN AN AGRICULTURAL SUPPLY CHAIN**

Specific Outcome 1: Analyse existing food safety and quality management systems in the agricultural environment.

Specific Outcome 2: Correctly interpret current market requirements in the agricultural supply chain.

Specific Outcome 3: Develop a food safety and quality management system to meet market requirements within the agricultural supply chain.

Specific Outcome 4: Plan the implementation of the food safety and quality management system in respect of food safety, production and environmental and social practices in the agricultural environment.

Specific Outcome 5: Implement and manage a food safety and quality management system in the agricultural supply chain.

Specific Outcome 6: Evaluate, take corrective action and make improvements to ensure the effectiveness/efficiency of the food safety and quality management system with regard to good agricultural practices (GAP), good manufacturing practices (GMP), good health practices (GHP), good social practices (GSP) and good environmental practices (GEP), whichever is applicable to the workplace.

Specific Outcome 6: Design a traceability system for operational efficiency in the agricultural supply chain.

Title: **OPTIMISE WATER QUALITY**

Specific Outcome 1: Develop, design and optimize water quality systems.

Specific Outcome 2: Demonstrate an ability to devise solutions to water quality management problems.

Specific Outcome 3: Demonstrate a thorough ability to maintain and calibrate all monitoring and adjusting equipment.

Specific Outcome 4: Demonstrate a thorough ability to manage infrastructure related to water quality systems.

Title: DESIGN A NATURAL RESOURCE MANAGEMENT PLAN

Specific Outcome 1: Design integrated natural resource management practices and plans to combat and prevent environmental degradation and deterioration.

Specific Outcome 2: Introduce innovative natural resource management practices to ensure the sustainability of an agricultural endeavour.

Specific Outcome 3: Develop and or update a natural resource management strategic plan for a farm.

Specific Outcome 4: Manage preventative and control measures according to a management plan.

Specific Outcome 5: Determine company/farm policy on natural resource management.

Specific Outcome 6: Assist in the development of area wide planning and local government structures and policies.

Specific Outcome 7: Demonstrate an in-depth knowledge of natural resource management practices and principles.

Title: FARM PLANNING AND SELECTING A SITE

Specific Outcome 1: Identify and use appropriate technology to determine sustainable farm layout and infrastructure placement.

Specific Outcome 2: Identify relevant service providers who can render specific services.

Specific Outcome 3: Research information relevant to the natural resources of a site.

Specific Outcome 4: Implement necessary conservation and natural resource management and harvesting practices.

Specific Outcome 5: Apply the principles of sustainability in terms of the layout and infrastructure placement in an agricultural context.

Title: MANAGE AND CONTROL RESOURCES IN A SUSTAINABLE MANNER

Specific Outcome 1: Modify and/or re-design appropriate equipment and implements to execute a specific agricultural task.

Specific Outcome 2: Set specifications for equipment / implements that will be suitable for a specific task.

Specific Outcome 3: Develop a maintenance and storage plan for implements, equipment and infrastructure.

Specific Outcome 4: Develop and implement safety policies and regulations.

Specific Outcome 5: Develop appropriate task related technology in the agricultural environment.

Specific Outcome 6: Design and manage an appropriate seasonal and/or year work program with reference to equipment, implements and technology.

Specific Outcome 6: Draft a replacement policy with reference to expenditure implications.

PLANT PRODUCTION

Title: DESCRIBE BIOLOGICAL PROCESSES IN PLANT PHYSIOLOGY

Specific Outcome 1: Explain the role of carbon compounds in cells and describe the ground rules of metabolism.

Specific Outcome 2: Explain the movement of water and solutes within a plant.

Specific Outcome 3: Describe the biochemistry of the energy acquiring pathways of a plant (photosynthesis).

Specific Outcome 4: Understand the energy releasing pathways (respiration) and its role in the plant.

Specific Outcome 5: Describe the different hormones and the role they play in the growth and development of a plant.

Specific Outcome 6: Describe plant responses to the environment.

Title: MANAGE SOIL SYSTEMS

Specific Outcome 1: Interpret soil and leaf analysis and make appropriate nutrient application recommendations.

Specific Outcome 2: Optimise soil utilization plan according to crop and soil requirements.

Specific Outcome 3: Keep all records regarding soil properties and use to build a database for future reference.

Specific Outcome 4: Design a soil systems management strategy.

Specific Outcome 5: Create and implement a database for soil management.

**Title: DEVELOP A PROPAGATION PLAN FOR ANY
AGRICULTURAL PRODUCTION SYSTEM**

Specific Outcome 1: Identify the appropriate propagation environment for specific categories of crops.

Specific Outcome 2: Do basic tissue culture.

Specific Outcome 3: Develop a plan for different propagation processes within the agricultural systems appropriate to specific enterprises.

Specific Outcome 4: Identify reasons for failure of propagated material / Identify problems that may be encountered with the propagated plant material.

Title: DEVELOP SUITABLE IRRIGATION SYSTEMS

Specific Outcome 1: Select an appropriate irrigation system.

Specific Outcome 2: Efficiently and cost effectively manage an extended irrigation operation.

Specific Outcome 3: Implement appropriate task related technology in the irrigated agricultural environment (scheduling/monitoring, adaptation of

scheduling programmes, etc.) in variable water availability scenarios.

Specific Outcome 4: Manage appropriate seasonal/year irrigation related work programmes with reference to crop water requirement, crop value, area irrigated and water availability.

Specific Outcome 5: Suggest a replacement policy with reference to expenditure implications.

Specific Outcome 6: Ensure that all irrigation practices are environmentally sensitive (e.g. Eurepgap and related Agreement compliant), specifically in terms of water extractions and return flows.

Title: DEVELOP AND IMPLEMENT PLANT MANIPULATION METHODS

Specific Outcome 1: Identify and incorporate plant manipulation needs into a plant manipulation management plan.

Specific Outcome 2: Incorporate framework development principles as part of plant manipulation methods if appropriate.

Specific Outcome 3: Analyse existing and optimise flower and fruit manipulation principles.

Specific Outcome 4: Plan the implementation of the pruning principles as vegetative plant manipulation methods appropriate to the crop.

Title: APPLY INTEGRATED PEST MANAGEMENT PRINCIPLES

Specific Outcome 1: Supervise the monitoring, trapping and recording of pest, disease and/ or weed information for the development of an integrated management plan.

Specific Outcome 2: Collate the data for the use in an integrated management plan.

Specific Outcome 3: Implement an integrated pest, disease and weed management plan.

Specific Outcome 4: Assist with data management for the auditing towards certification for Good Agricultural Practices.

Title: MANAGE THE HARVESTING PROCESS OF AGRICULTURAL CROPS

Specific Outcome 1: Investigate new tools / equipment and methods of harvesting to compliment existing plan and procedures.

Specific Outcome 2: Manage the maturity-indexing process and decide on procedures.

Specific Outcome 3: Manage the harvesting of crops according to specified procedures.

Specific Outcome 4: Manage so that health, hygiene and safety during harvesting is adhered to according to specified procedures.

Specific Outcome 5: Manage the disposal of waste according to specified procedures in accordance with good agricultural practices.

Specific Outcome 6: Manage the care and maintenance of equipment used.

ELECTIVE

Title: EVALUATE AND COORDINATE AREA WIDE SUSTAINABLE WILD FLOWER HARVESTING

Specific Outcome 1: Demonstrate a detailed knowledge of sustainable harvesting practises and ecosystem sustainability.

Specific Outcome 2: Recommend compliance procedures to landowners and contractors.

Specific Outcome 3: Input into relevant legislation and policy reform.

Specific Outcome 4: Develop appropriate training programs and manage a regional wild flower harvesting plan, incorporating habitat management.

Specific Outcome 5: Inform landowners of market and industry trends.

Specific Outcome 6: Manage and evaluate spatial and non-spatial data on a regional scale to support and promote best practices.

Title: DEVELOP, IMPLEMENT AND MANAGE A PERMACULTURE SITE DESIGN

Specific Outcome 1: Optimise site resources and productivity by integrating elements on a specific site.

Specific Outcome 2: Maximise the use of local biotic and abiotic resources on a specific site.

Specific Outcome 3: Integrate ecological processes and cycles on a specific site.

Specific Outcome 4: Integrate sustainable living practices into the plans for a specific site.

Title: **THE OPTIMISATION OF AGRI / ECOTOURISM
STRENGTHS AND OPPORTUNITIES AND NEGATION OF
THREATS AND WEAKNESSES**

Specific Outcome 1: Collate strategic inputs from all relevant information sources into a strategic/business plan.

Specific Outcome 2: Disseminate action plan(s) to the operational level of the Agri/Ecotourism business.

Specific Outcome 3: Implement the action plans.

Specific Outcome 4: Monitor and evaluate the strategic plan for all components in successful Agri / Ecotourism business.

Title: **THE EFFECTIVE AND RESPONSIBLE ARIAL
APPLICATION OF AGROCHEMICAL PRODUCTS**

Specific Outcome 1: Demonstrate an understanding of the principles of aerial application of agrochemical products.

Specific Outcome 2: Demonstrate an understanding of the legal and regulatory aspects of aerial application of agrochemical products.

Specific Outcome 3: Analyse and evaluate the spraying performance of the aircraft and implement the necessary technological modifications.

Specific Outcome 4: Demonstrate an understanding of and implement effective and responsible flying skills.

Specific Outcome 5: Manage effective and responsible preparation of spray mixture.

Specific Outcome 6: Deal with emergencies.

Specific Outcome 7: Perform post-operational practices.

**Title: EFFECTIVE AND RESPONSIBLE ADVIC,
RECOMMENDATION AND SALE OF AGROCHEMICAL
PRODUCTS**

Specific Outcome 1: Advise on the management of an agrochemical storing facility.

Specific Outcome 2: Classify and categorise insects, pests and weeds affecting the agricultural enterprise or assist with having these classified.

Specific Outcome 3: Apply an in-depth knowledge of integrated pest management (IPM)..

Specific Outcome 4: Apply and in-depth knowledge on the different methods of product application and the identification of related problems.

Specific Outcome 5: Execute post-application monitoring.

Specific Outcome 6: Advise on environmental and community considerations.

Specific Outcome 7: Make effective, economical, responsible and legal recommendations on product selection and use.

Title: MANAGE A HYDROPONIC PRODUCTION UNIT

Specific Outcome 1: Demonstrate a thorough understanding of the hydroponic production environment.

Specific Outcome 2: Demonstrate a thorough understanding of crop's fertilization requirements.

APPENDIX F

Report of the

PRIMARY AGRICULTURAL STANDARDS GENERATING BODY

to accompany the submission of:

**National Certificate in Animal Production at NQF 1
National Certificate in Plant Production at NQF 1
National Certificate in Mixed Farming Systems at NQF 1
National Certificate in Animal Production at NQF 2
National Certificate in Plant Production at NQF 2
National Certificate in Mixed Farming Systems at NQF 2
National Certificate in Animal Production at NQF 3
National Certificate in Plant Production at NQF 3
National Certificate in Animal Production at NQF 4
National Certificate in Plant Production at NQF 4
National Diploma in Animal Production at NQF 5
National Diploma in Plant Production at NQF 5**

1. INTRODUCTION

Rationale

The qualifications are intended to address the needs of the broad farming community ranging across the whole spectrum from small-scale farmers, emerging farmers and beneficiaries of land reform to large scale commercial farmers and form the basis for developing learners into farm labourers, farm managers and commercial farmers. The decision to develop the qualifications from NQF levels 1 to 5 emanates from the need in the primary agricultural sector to address progression and recognition of prior learning. It will also facilitate a process of lifelong learning which starts at NQF 1 by addressing the need for numeracy and literacy.

In order to remain competitive internationally, primary agriculture faces a huge task in terms of the development of its human resources. Its skills base is very low with more than 33% of its workforce being illiterate, it is male dominated and vast differences in skills levels exist between commercial farming and subsistence farming. Major skills upgrading is required and social issues (such as HIV/AIDS) need to be addressed as a matter of priority.

Context

Primary Agriculture is a comprehensive sector, covering a wide range of farming activities, at various levels of sophistication and is spread all over the country.

It employs 620 000 persons on a permanent basis and a further 300 000 on a contract and seasonal basis, employed on 60 000 farming units. This implies that the average farming enterprise is very small; on average 10 to 15 persons per enterprise.

Enterprises are by definition rurally based. The sector has a large impact on the economy of South Africa. As such primary agriculture is responsible for 25% of the growth in GDP in South Africa.

This sector is economically under severe pressure from factors such as:

- Global participation of South Africa's economy at large impacts directly on this sector,
- As a result of the removal of sector protection, it is faced with large volumes of dumping on South African market,
- The climate has a direct influence on the performance of the sector, and
- New emerging producer's worldwide results in an over-production of agricultural products on the global market.

The education level of farm workers is in general low. Many farmers are new entrants into the sector. A large percentage of these are subsistence farmers. To address the variety of needs of the farmers, the following issues are important:

- ABET programmes to address literacy and numeracy;
- Programmes relating to a better understanding of the farm as a business entity;
- Technical requirements of each specific type of farming such as horticulture;
- Supervision; and
- Farm management.

Philosophy of Transformation:

It is the preferred strategy to ensure, from a human development perspective, that the Primary Agriculture Sector is supported with the necessary skills, which will impact on technological innovation and the ability to utilise such innovation. This will enable the sector to take advantage of global opportunities and impact on wealth creation in a balanced manner.

Market need:

The following needs should be addressed at a practical level:

- Ensure that the broad skills base of the sector is of such a nature that technological advances could be implemented with success, and
- Develop the skills of the emerging farming sector to such an extent that it can participate in the formal economy and as a result become net creators of employment.

In order to achieve the above, a strategy has been developed for the primary agricultural sector. In essence, this strategy will strive to support the following with regards to employment *per se*;

- That over the next four years, the employment levels of 625 000 in the commercial sector is at least maintained as well as the part-time employment of the 300 000 seasonal workers.
- That the employment level of 1,2 million people working on rural and former homeland farms can be maintained but that their ability to participate in the formal economy is improved.
- That awareness programmes contribute to the eradication of HIV/AIDS and as such protects the skills base of the sector.

In a national strategy for the primary agricultural sector, the following set of general agricultural priorities was set for the country. These are:

- A farmer settlement programme which focuses on the youth and women.
- To improve the availability of services to support a diverse set of farming systems.
- Implementing a strategy to support agri-business development aimed at job creation, black economic empowerment and expanding the income generating opportunities in agriculture by focussing on value adding and the exploitation of the opportunities presented by the diverse indigenous fauna.
- Restructuring of the irrigation schemes in former homeland areas.
- Promotion of sustainable agricultural production by opening up opportunities for industrial crops production.
- Rural development, the alleviation of poverty and job creation.
- The nurturing of our human and natural resources through capacity building and training and the implementation of sustainable farming practices.

2. QUALIFICATION AND STANDARDS GENERATING PROCESS

Whilst the SGB for Primary Agriculture as well as the SGB for Ornamental Horticulture and Landscaping commenced with the design of qualifications and the writing of some unit standards, extensive work still needed to be done in this field. In order to complete the work within the time available the following planning framework was developed.

Theoretically two options/approaches are available to consider the farming industry at large, namely:

- To apply a commodity delineation to the sector and thus focus on the broad definition of agronomy, horticulture, ornamental horticulture and animal husbandry; or
- To consider the sector within a functional delineation namely, establishing, production, harvesting, storage and processing, transport and marketing.

In order to clarify the best route to take (which will also provide the framework for the development of qualifications and unit standards), it was proposed that the process be initiated with a larger stakeholder workshop bringing together subject matter experts (SMEs) from each of the commodity groupings.

The outcome of this intervention was the development of a broad framework for qualifications and unit standards as well as a logical structure of the approach to be followed (commodity based or functionally based or some combination thereof). This provided the basis for the commencement of the work of the sub-groups to develop a qualification framework and the necessary unit standards.

Consultation with local subject matter experts

An inception workshop of four days was organized as the starting point of the project. The aim of the workshop was to:

- Explore and map the primary agricultural landscape;
- Use this landscape as a basis for the qualifications framework; and
- Determine and agree on principles emanating from the above processes as a guideline for the development of the qualifications framework.

Subject matter experts were identified to represent as many primary agricultural sub-sectors as possible with the view to developing a broad overview of the primary agricultural sector. Subject matter experts were selected based on criteria accepted by the members of the steering committee.

The following sub-sectors were represented:

- Agricultural education
- Agriculture and human resources
- Agronomy
- Animal improvement
- Animal production
- Aquaculture
- Citrus
- Cut flowers

- Cotton
- Deciduous fruit
- Department of Education – national curriculum statements for agriculture
- Economics / business planning / flower export council / trade and investment
- Food safety & quality assurance / packaging / grading /classification of products
- Grain crops
- Grapes
- Herbs and spices / alternative crops
- Hydroponics
- Land-use and soil management
- Medicinal plants
- National Department of Agriculture
- Organics
- Ornamental plants
- PAETA
- Potatoes
- Red meat producers, emerging –including pig production
- Rural development / commercial farmers
- Sugar cane
- Soil science
- Sustainable agriculture
- Table grapes
- Vegetables
- Viticulture
- Wild flower harvesting
- Wine growers

Furthermore, representatives of the following SGBs attended the workshop:

- Extension Services;
- Ornamental Horticulture (invited to nominate five members); and
- Primary Agriculture (invited to nominate five members).

Subject Matter Experts

During a series of 18 workshops, 94 Subject Matter Experts were invited to undertake the development of Qualifications and Unit Standards. The workshop schedule has been attached as Annexure A to this report whilst the list of Subject Matter Experts has been attached as Annexure B to this report.

Committees involved

- PAETA Sub-Sector committee (equal employee/employer representation)
- Learnership workgroup (Includes representatives from employer organisations, employee organisations, private providers, public providers)
- Learnership-SGB task group (included members from the learnership workgroup as well as the SGB)

Narrow Consultation.

The SGB comprises of representatives of organised labour, employers, training providers and government representatives. The SGB is representative enough with relevant expertise. In areas where they lack expertise, they consult with colleagues and make contacts with industries to ensure the integrity of the unit standards generating process and the relevance and quality of those standards.

3. INTERNATIONAL COMPARABILITY

In the case of the primary agricultural context it is difficult to compare the qualification and unit standards because of the vast differences in the level of mechanisation, the level of literacy of the farm operators, climate and other conditions as well as the variety in commodities.

However, New Zealand and Australian qualifications and unit standards were sourced and evaluated for applicability. Also, during two separate study visits, agricultural practices were compared in the Netherlands and France.

An example of the differences would be in animal husbandry where the cold climate (snow and ice) requires total different feeding processes and different hygiene processes.

However, there are similarities in terms of the floriculture and viticulture processes and unit standards.

4. ARTICULATION POSSIBILITIES

Horizontal and Vertical Progression:

The qualifications at NQF Level 1 are intended to form the basis for career path progression in the field of agriculture (Plant Production, Animal Production and Mixed Farming). However, it is believed that as learners achieve the first level as a basis for lifelong learning, progress toward as well as expanding and improving access to other occupations and careers such as food processing (dairy, fruit juices, etc.) would be a definite possibility. The learner who has acquired this qualification can progress vertically by acquiring unit standards at levels 2 and 3.

Horizontal movement will also allow for moving from one category of commodities (for example horticulture) into other categories of commodities (such as agronomy) without repeating the full qualification, but only adding elective unit standards as defined in the qualifications.

5. QUALITY OF THE QUALIFICATIONS

The processes of broad and narrow consultation ensured the quality of qualifications. The contribution of the subject matter experts via the workshops proved to be invaluable to the quality of all qualifications.

The quality of the qualification is also enhanced by the suitability to the industry and addressing needs of skills shortages.

The qualification was designed on the basis of the NQF principles. The principles that apply are democratic participation, transparency and credibility.

6. CRITICAL CROSS-FIELD OUTCOMES

All the critical-cross field outcomes are represented in the exit level outcomes of the qualifications and will be assessed during the integrated assessment process.

ANNEXURE A

WORKSHOP SCHEDULE

CYCLE	WORKSHOP NUMBER	DATES	ACTIVITIES	WORKSHOP DAYS	PEOPLE PER GROUP	NUMBER OF GROUPS	NUMBER OF PEOPLE
	Inception Workshop	21-24 Jul 2003	Developing the Agricultural Landscape Developing the framework	3	35	1	35
CYCLE 1	WS1 (Incl. SGB members)	15 - 16 Oct 2003	Approve tables and figures Identify categories Identify and Establish work groups	2	45	1	45
CYCLE 2	WS2 Group 1	10 - 11 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
	WS3 Group 2	12 - 13 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
	WS4 Group 3	18 - 19 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
	WS5 Group 4	20 - 21 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
	WS6 Group 5	24 - 25 Nov 2003	Introduction to work Determine U/S titles for each NQF level Write 2 unit standards	2	3	6	18
CYCLE 3	WS7 Group 1	12 - 13 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
	WS8 Group 2	14 - 15 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
	WS9 Group 3	19 - 20 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
	WS10 Group 4	21 - 22 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
	WS11 Group 5	26 - 27 Jan 2004	Revisit work Write 3 unit standards	2	3	6	18
CYCLE 4	WS12	16 - 18 Feb 2004	Consolidate unit standards Determine consistency across levels Work group per NQF level	3	3	5	15
CYCLE 5	WS13	23 - 25 Feb 2004	Write additional unit standards for Organic, hydroponic, permaculture, horticulture, agronomy	3	3	5	15
CYCLE 5	WS14	1 - 3 Mar 2004	Write additional unit standards for small-stock, large livestock, game, dairy and pigs and aquaculture	3	3	6	18
CYCLE 6	WS 15	24-26 Mar 2004	Refinement of unit standards and qualifications	3	5	1	5
CYCLE 6	WS 16	26-28 May 2004	Refinement and finalisation of unit standards and qualifications	3	5	1	5
TOTAL				31	84	77	273

ANNEXURE B

LIST OF PARTICIPANTS

DELEGATES	ORGANISATION
Name	Org/Company
Mr Francois Marais	Elsenburg LandbouKollege
Tertius Carinus	SANParks - Agulhas Biodiversity Initiative
Raymond Auerbach	Rainman Landcare Foundation
Denver Williams	DFPT - Deciduous Fruit
Joseph Foli	Owen Sithole College of Agriculture
Hentie (CH) Boshoff	Futures Trust/SA Flower Export Council
Bubi (OD) Aphane	Mabothoso Agric Development
Sue Spies	Heartlight-Sustainable Agri & Perma
Roger Bailey	Flower Valley Conservation Trust
Jeanette Smit	Dept of Agric, Lowveld College of Agric
John (DJ) Tladi	Department of Agriculture
Niel Erasmus	NDA - Food Safety & Quality Assurance
Khalid Salie	University of Stellenbosch
Grant Kobus	KZN Dept Agriculture & Env Affairs
Andrew Masemola	Morwa Agri Development
Lekakane (Wilson) Leshilo	Limpopo Dept of Education
Leon de Beer	National Wool Growers Association
Johannes Klopper	National Wool Growers Association
Annetjie Loubser	Agric Research Council
Alicia Fillis (ne Solomons)	Cape Women's Forum
Keith Dampies	Deciduous Fruit - Elgin (SGB Member)
Milton Titimani	Linedrift Farm/ Heifer International
Attie de Beer	ARC-GCI, Sustainable Rural Livelihoods
Astrid Hattingh	ARC-Grain Crops Institute
Fransa Ferreira	Unisa/Vista - Com. Res Tech
Mr Henry Horne	Vineyard Academy
Gerrie Albertse	SA Wine Industry Trust
Fanie (SE) Terblanche	SGB for Agricultural Extension
Mkhululi Mankazana	NDA - Agric Education Policy Directorate
Renee Deschamps	SGB - OHL
Henry Moore	SGB Chairman SA Sugar Association
Riaan Nowers	Dept of Agriculture, Western Cape
Gavin Eichler	Zululand Centre for Sustainable Dev
Venty Mahlangu	Dept of Agric, Mpumalanga
Dr A S Dlodla	KZN Dept Agric & Environ Affairs
Jackie Beerwinkel	Dept Agric: Western Cape
Gideon Steyn	University of Pretoria
Frik Steenkamp	Morgenzon Agricultural High School
Bom Louw	Lowveld College of Agriculture
Mfusi Mjonono	Elsenburg College of Agriculture
Bongiswa Mahlanza	Elsenburg College of Agriculture
Sakhumzi Diza	Elsenburg College of Agriculture
Emmanuel Poku	Owen Sithole College of Agriculture
Tommy Phiri	SAFROPA

William van der Merwe	ABKS Potchefstroom University
Freek du Plooy	Private
Naomi Smit	Dept of Agriculture, Free State
Ferde Hugo	Dept. Agriculture Western Cape
Hennis Germishuys	Dept. Landbou Hulpbronbewaring
Ken Kennedy	Formosa Training Forum SA Agri Academy
Solly van Tonder	Rural Integrated Engineering
Peter Reid	Lowveld College of Agriculture
Mark Anthony	Mpumalanga Dept of Agriculture
John J Nzira	Food & Trees for Africa
Robert Post	Bee Industry
Lourens de Wet	Univ of Stellenbosch, Div of Aquaculture
Greta van der Merwe	ARC
David Donkin	Animal Production Consultant
Frans Joubert	Mpumalanga Education Agriculture
David Barnard	Elsenburg College of Agriculture
Obie Oberholzer	Lowveld College of Agriculture
Wilhelm Kenny	Dept of Agriculture, Western Cape
Keith Ramsay	NDA
Annette Bennett	Cotton SA
Andrew Mbedzi	Du Roi Precision Farming
Paul Oliphant	Boland District Municipality
Lance du Toit	Molteno Brothers Farming
Herman Loubser	ARC Grain Crops Research
Charl van Rooyen	Agricultural Extension Officer
Roberta Burgess	ARC - Sustainable Rural Livelihoods Prog
Ms Mapaseka Maphaha	University of Fort Hare, Fac of Agric
Mr Obeng Kofi Owusu-Aduomi	University of Fort Hare, Agronomy Dept
Henry Cook	Elsenburg College of Agriculture
Hilary Boshier	Green Futures College
Sean Privett	Grootbos Green Futures College
Mustaq Hoosen	Owen Sitole College of Agric, KZN
W A Ferreira	Grain SA
Eunice Avenant	Elsenburg LandbouKollege (<i>Pomology & table grapes</i>)
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Dimitri Tassiopoulos	Border Technikon (Higher Education: Tourism)
Joa Bekker	Karsten Bdy
Chris Martens	Western Cape Nature Conservation Board
Gerhard Gerber	WC Dept of Enviro Affairs & Dev Planning
Isabel Potgieter	Dew Crisp Farms
Hannes Robbertse	17 Shaft Training
Gary Larkan	Game Farming
Neil Evans	Dept Comm Science, Univ of Zululand
Laurence Evans	Mtunzini Prawn Farms (Pty) Ltd
Janice Crous	I&J Abalone Culture Division
Dr Pierre Hugo	Abagold
Mynhardt van Dyk	Abagold
John Moodie	Honeywood Farm

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