



USAID
FROM THE AMERICAN PEOPLE

PARTNERSHIP FOR SAFE POULTRY IN KENYA (PSPK) PROGRAM

VALUE CHAIN ANALYSIS OF POULTRY IN UGANDA

NOVEMBER 2010.

This publication was produced for review by the United States Agency for International Development. It was prepared by Winrock International.

PARTNERSHIP FOR SAFE POULTRY IN KENYA (PSPK) PROGRAM

VALUE CHAIN ANALYSIS OF POULTRY IN UGANDA

DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Table of Contents

Acronyms	iv
1.0 Introduction	1
1.1 Background	1
1.2 Objectives of the study	1
1.3 Approach and Methodology	2
1.3.1 Selection of study area	2
1.3.2 Study approach	2
1.3.3 Methodology	2
1.4 Limitations of the study	3
2.0 Findings	4
2.1 Status of poultry sector in Uganda	4
2.2 Importance of poultry in peoples' livelihoods	4
2.3 Husbandry systems	6
2.3.1 Extensive system	6
2.3.2 Intensive system	7
2.3.3 Farmers' perception of the categories	8
2.4 Supply outlook	10
2.4.1 Poultry distribution	10
2.4.2 Source of birds	13
2.4.3 Feed supplies and feeding	13
2.5 Poultry processing	18
2.6 Market Outlook	20
2.6.1 Demand for poultry and poultry products	20
2.6.2 Per capita consumption	20
2.6.3 Markets and marketing	22
2.6.4 Marketing chain	22
2.6.5 Types of markets	25
2.6.6 Price mark-ups along the value chain	25
2.7 Trade in poultry meat and eggs	27
2.8 Enabling environment	28
2.8.1 Imports and tax policies	28
2.8.2 Credit and/or subsidies	28
2.8.3 Availability of crops for poultry feeds	28
2.8.4 High demand for poultry and poultry products	29
2.8.5 Supportive government policies on agriculture development	29
2.8.6 Committed farmers and other stakeholders along the value chain	29
2.8.7 Existing support services	29
2.8.8 Existing farmer groups/stakeholder associations	29
2.9 Supporting projects for the poultry industry	29
3.0 Roles, Challenges and Opportunities of Stakeholders Along the Value Chain	37
3.1 Producers	40
3.2 Veterinary extension workers	40
3.3 Input Suppliers	40
3.4 Traders	40
3.5 Hatchery operators	40
3.6 Finance institutions	40
3.7 Training and research institutions	41
4.0 Analysis of the Challenges in the Poultry Sector	41
4.1 Breeding/inadequate availability of DOCs	41
4.2 Feeds and feeding	41
4.3 Poultry diseases	42
4.4 Inadequate knowledge and skills	42

4.5	Inadequate capital	42
4.6	Marketing	42
4.7	Housing	43
5.0	Opportunities of the Poultry Industry	43
6.0	Conclusions and Proposed Interventions	44
6.1	Conclusion	44
6.2	Proposed interventions and investments	44
6.2.1	Enhancing market linkages	44
6.2.2	Regulation availability of feed ingredients	44
6.2.3	Promotion of support services.....	45
6.2.4	Improving feeds and feeding for the local birds	45
6.2.5	Establishing the feeds regulatory mechanism	45
6.2.6	Strengthening stakeholder groups and associations	45
6.2.7	Improving health services and diseases control	45
6.2.8	Improving availability of DOC	46
6.2.9	Farmer/stakeholder training	46
6.2.10	Increased funding to the poultry sector	46
6.2.11	Establishment of a database/information system	46
6.2.12	Development of native/indigenous breeds	46
6.2.13	Strengthening networking	47
References	48

List of Figures and Tables

Figure 1.	Focus group discussion in Soroti subcounty-Soroti district.....	3
Figure 2.	Proportion of households owning chicken.....	4
Figure 3.	Frequency of enterprise selection under NAADS.....	5
Figure 4.	A local hen takes care of the scavenging guinea fowls in Soroti.....	7
Figure 5.	Farmer in Hoima keeps locals semi-intensively	8
Figure 6.	Farmer broods improve locals in Soroti.....	8
Figure 7.	Percentage distribution of chicken by region.....	10
Figure 8.	Total number of chickens by District.....	11
Figure 9.	Total number of exotic broilers by District.....	11
Figure 10.	Local chicken density	11
Figure 11.	Distribution of chicken numbers by type and region.....	12
Figure 12.	Distribution of the five major poultry feed ingredients	16
Figure 13.	Chicken bleeding and handling processed chicken at Ugachick	18
Figure 14.	Bleeding chicken and slaughter in a market	19
Figure 15.	Chicken slaughter and processing in a makeshift market	19
Figure 16.	Processing at Nakasero market in Kampala.....	19
Figure 17.	Trader bargaining in Soroti central market	22
Figure 18.	Transporting chicken in Lira.....	22
Figure 19.	Market place for poultry at Hoima Central Market; transporting birds on the East	22
Figure 20.	Marketing channels.....	23
Figure 21.	Supply chain for chicken	24
Figure 22.	Frequency of selection for livestock, apiculture and aquaculture enterprises.....	35
Figure 23.	Distribution of expenditure on key selected enterprises (in million shs).....	35
Table 1.	Ranking of poultry in terms of income to other livestock in the five study districts.....	5
Table 2.	Key livestock, apiculture and aquaculture selected by farmers under NAADS program	6
Table 3.	Types of husbandry practices in the study districts	9
Table 4.	Categorization of poultry farmers in areas of study.....	9
Table 5.	Chicken breeds by region.....	12
Table 6.	List of major hatcheries and operational capacities	13

Table 7.	List of feed factories	14
Table 8.	Production of selected food crops in thousand tons (2004-2009).....	15
Table 9.	Top exports – Uganda 2007.....	17
Table 10.	Broilers’ ratios (Kampala District)	18
Table 11.	Trends in annual production of meat and eggs	20
Table 12.	Trends in annual consumption of meat and eggs.....	20
Table 13.	Per capita and poultry meat consumption in Uganda from 2000 to 2008.....	21
Table 14.	National poultry meat production 2000-2008.....	21
Table 15.	Projected growth in country population.....	21
Table 16.	Average prices of chickens at markets.....	26
Table 17.	Transaction costs of middlemen/traders	26
Table 18.	Value of imports and exports of poultry and poultry products	27

List of Annexes

Annex A.	TORs for Value Chain Analyses of Poultry Industries in Ethiopia, Tanzania, and Uganda
Annex B.	Data Collection Tools
Annex C.	List of Respondents

Acronyms

ACP	Asian, Caribbean and Pacific
AUPWAE	Association of Uganda Professional Women in Agriculture and Environment
CBOs	Community based organizations
DLG	District local government
DRC	Democratic Republic of Congo
DRs	District Rapid Response Teams
EAC	East African Community
FAO	Food and Agriculture Organization
FFSs	Farmer field schools
GDP	Gross domestic product
GMA	Gross Margin Analysis
HH	Household
HPAI	Highly Pathogenic Avian Influenza
IDPs	Internally Displaced Persons
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
MFPED	Ministry of Finance, Planning, and Economic Development
MT	Metric tons
NAADS	National Agricultural Advisory Services
NCD	New Castle Disease
NGOs	Nongovernment Organizations
NTF	National Task Force
PMA	Plan for the Modernization of Agriculture
PSPK	Partnership of Safe Poultry in Kenya
TWGs	Technical Working Groups
UBOS	Uganda Bureau of Statistics
USAID	United States Agency for International Development
UVA	Uganda Veterinary Association
VAT	Value Added Tax
WI	Winrock International

1.0 Introduction

1.1 Background

Uganda is a landlocked country lying on the western shores of Lake Victoria, situated between lat 1° South to 4° North and 30° – 35° East, straddling the equator. With a land mass of 241,139 km² and approximately 33% being water and swamp, the country enjoys a moderate climate of 24° – 32°C (Average 27°C) throughout the year. Located in Eastern Africa, Uganda is bordered by the Republic of Kenya to the East, the Republic of Sudan to the North, the Democratic Republic of Congo to the West and to the South by both the Republic of Rwanda and the Democratic Republic of Tanzania. Current estimates show the human population in Uganda to be 33.4 million people (http://www.indexmundi.com/uganda/population_growth_rate.html. Ref accessed September 10, 2010), with the fastest population growth rate in Africa, estimated at 3.6% in 2008.

Uganda is largely an agricultural country where over 80% of the population is engaged in agricultural activities. The agricultural sector, therefore, remains the backbone of Uganda's economy, contributing 21% of the GDP. Livestock, including poultry farming, accounts for 13.1% of the Agricultural GDP and 4.2% of the total GDP (MFPED, 2009). However, most of the agriculture is peasant type, and through the recently launched National Development Plan (2010/11-2014/15), the government has laid out strategies to transform the economy from peasant/subsistence type to modern commercial agriculture.

Poultry plays an important role in the livelihoods of the populace in Uganda, as an important source of improved human nutrition and food security (eggs and meat); a cheap source of protein; an opportunity to increase peoples' incomes through the sale of poultry and poultry products; a key supplement to revenue from crops and other livestock enterprises; and highly prized in many social-cultural functions such as dowry and festivities. Poultry has the potential to generate foreign exchange earnings through export of poultry products to neighboring countries (e.g. Rwanda, Democratic Republic of Congo, Sudan, and Kenya).

Some estimates suggest that poultry production in Uganda is increasing at a rate of 4% per annum, and the government continues to encourage increased poultry production to take advantage of the high demand for poultry products in neighboring countries.

Despite the importance of poultry at the household (hh) level and its contribution to the national economy, the poultry industry has not developed as expected, due to some limitations along the value chain.

Winrock International was commissioned to conduct value chain analyses of the poultry industries in Ethiopia, Tanzania, and Uganda funded by United States Agency for International Development (USAID). The purpose of the studies was to complement the recently completed poultry value chain study in Kenya and provide a snapshot of the opportunities in the poultry subsector in East Africa.

1.2 Objectives of the Study

The main objective was to carry out a value chain analysis of the poultry industry and come out with constraints, opportunities, and strategies to further develop the poultry sector in the region as per terms of reference (**Annex A**).

Specific objectives focused on the following areas:

- Market outlook for poultry to 2020
- Supply outlook
- Trade in poultry, eggs, and meat
- Enabling environment

- Value chain mapping
- Price mark-ups along the value chain
- Supporting projects for the poultry industry
- Interventions and investments that would positively impact on the development of the poultry industry as well as on smallholder involvement in contributing towards the competitiveness of the industry

A consultant was identified to carry out the study in Uganda under direct supervision of the Association of Uganda Professional Women in Agriculture and Environment (AUPWAE).

1.3 Approach and Methodology

1.3.1 Selection of study area

The study was conducted in four (4) rural districts (Mukono, Soroti, Lira, and Hoima) and one urban district (Kampala) of Uganda, selected based on chicken distribution and country regional representation. The assumption was that districts within an agro-ecological area are homogenous in the production and marketing practices of poultry. In each selected district, the study encompassed both urban and rural settings. Kampala, being a cosmopolitan urban district with the largest share in the commercial chicken production, marketing, and consumption, was the fifth district included in the study.

1.3.2 Study approach

The assignment was carried out in a participatory manner involving different stakeholders, namely, producers/farmers; traders/marketers; processors; consumers; agriculture extension workers; transporters; financial institutions; Ministry of Agriculture, Animal Industry and Fisheries (MAAIF); input dealers (veterinary farm supply shops, feed millers, farmers with hatcheries/parent stock) and collaborating agencies - Food and Agriculture Organizations (FAO) and Faculty of Veterinary Medicine Makerere University). Several methods were used to get the information as elaborated below:

The study was by descriptive survey. Document review was also critically employed to enrich the primary data. Field visits were carried out in the five districts to hold interviews and focus group discussions with different stakeholders. Key informant interviews were held specifically with policy makers, technical staff, input dealers, and development partners from key institutions.

1.3.3 Methodology

Consultative meeting

A one-day consultative meeting was held at the AUPWAE office with the Program Manager of Partnership for Safe Poultry in Kenya (PSPK), the consultant, and members of the AUPWAE executive committee. The objective of the meeting was to create a common understanding about the assignment, specifically the terms of reference, the workplan and budget, and expected outputs and approach to carrying out the assignment. The meeting also shared the experience in implementation of the PSPK project in Kenya.

Review of documents and collection of secondary data

The consultant reviewed the documents to get more acquainted with the status of the poultry industry, market outlook (demand and demand drivers); supply outlook (key poultry; cereal and oil seed production; production and consumption of poultry and poultry products in the regions; and statistics on trade (import and export of poultry and poultry products), markets, and marketing among others.

Designing data collection tools

The consultant designed tools for data collection from farmer groups/producers, marketers/traders, processors, and key informants. Instruments included checklists for focus group discussions and individual interviews (**Annex 2**).

Data collection

The consultant collected primary data from the study districts using the tools as described below:

- Focus Group Discussions (*FGDs*). FGDs were held with farmers' groups/producers, traders/marketers, and processors (**Figure 1**).

Figure 1: Focus group discussion in Soroti subcounty- Soroti district



- Key informant interviews. Key informant interviews were held by interview guides for specific stakeholders. Individuals interviewed included officers from MAAIF; managers of finance institutions; veterinary extension workers; District National Agricultural Advisory Services (NAADS) coordinators; managers of hatcheries/parent stock; veterinary farm supply shops; and feed millers. The individual interviews were aimed at getting information from specific/target people to get more insights regarding production and marketing of poultry and poultry products, constraints, challenges, and recommendations to improve the poultry industry competitiveness and small holder farmer participation in development of the poultry industry.

Photography

The consultant took photographs of the different stakeholders at work to further complement the data collected and for visualization of the actual situation in the field.

Data analysis and report writing

Raw data was subjected to descriptive analysis and tabulated according to the parameters under survey in each district. Comparisons were then made within and across districts basing on the objectives of the survey. Findings are presented in both narrative and simple tables. The draft report will be presented to the client for discussion. Comments from the client will be incorporated in the final report.

1.4 Limitations of the study

There were two major limitations:

- Inadequate time for the study. It was not possible to have face-to-face interviews but had to use telephones.

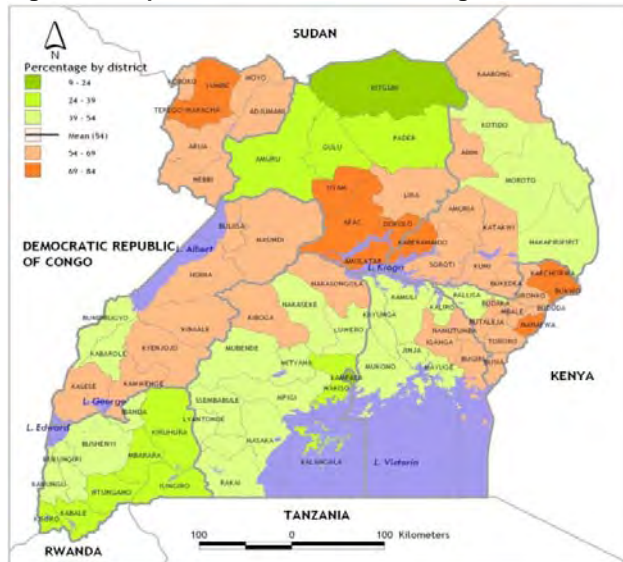
- Inadequate and/or absence of required information due to poor record keeping and/or absence of databanks in stakeholder organizations.

2.0 Findings

2.1 Status of the poultry sector in Uganda

The following poultry types exist in Uganda: fowls (chickens), ducks, turkeys, ostriches, geese, pigeons, and guinea fowls. The current poultry populations stand at 37.4 million chickens, 1.46 million ducks, 350,000 turkeys, 150,000 guinea fowls, and 49,000 geese (MAAIF/UBOS 2008). Estimated households owning chickens in Uganda are 3.2 million with the Eastern region having the highest number (0.98 million hh) and Karamoja zone the least number (0.11 million hh) as indicated in **Figure 2**. Almost all the chicken-owning households (99.2%) owned indigenous chickens; in contrast only (1.2%) of the chicken-owning households owned exotic chickens with the Central region having the highest number of exotic chickens (3.6%).

Figure 2: Proportion of households owning chicken



Source: MAAIF/UBOS Livestock Census Report, 2008

The industry registered rapid development during the 60s, and the country had started exporting poultry products. However, there was a sharp decline during the late 70s and early 80s due to civil strife. Although the industry has not yet fully recovered and a lot needs to be done, some progress has been achieved during the last ten years.

The major poultry type that most people are currently engaged in is the chicken, and this will be the focus for this study. However, other poultry types such as guinea fowls, ducks, and turkeys also have a potential for development.

2.2 Importance of poultry in peoples' livelihoods

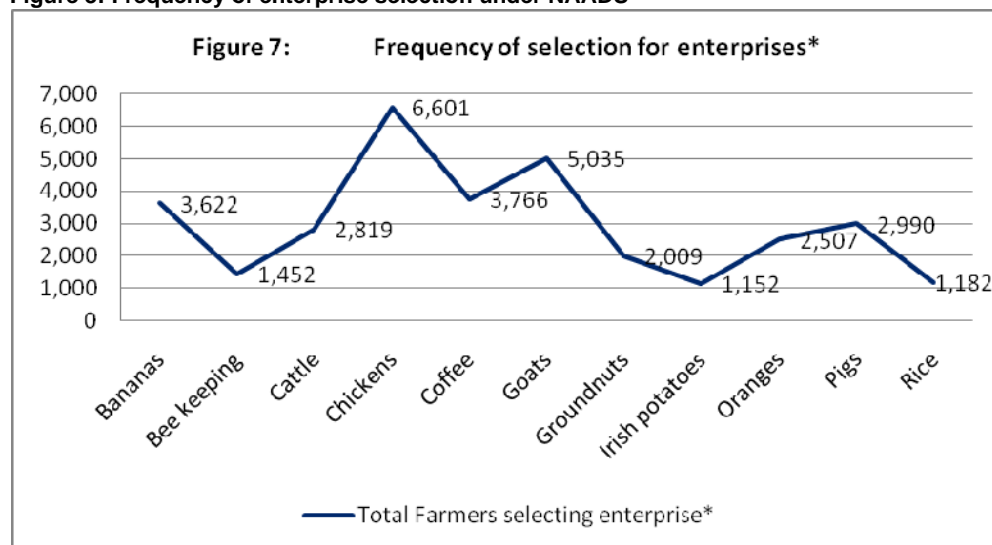
Poultry enterprise has been identified in Uganda as an engine for poverty alleviation and also provides high quality protein, in forms of eggs and meat. Predominantly supported livestock enterprises included the indigenous poultry, improved pigs, goats, and dairy cattle (NAADS 2008/09). During the study, poultry was ranked as a major source of income for most farmers and also important for food security as indicated in **Table 1**. The study findings are in line with the

results of enterprise selection under NAADS program which prioritized poultry in most districts and as a number one livestock enterprise selected and supported by the program as indicated in **Table 2** and **Figure 3**. The frequency of selection of the poultry enterprise was 6,602, against cattle at 2,819, goats at 5,033, and pigs at 2,507.

Table 1: Ranking of poultry in terms of income to other livestock kept in the five study districts

District	Livestock type	Food security ranking	Income ranking
Kampala	Chicken	1	2
	Goats	2	3
	Pigs	3	1
	Cow	4	4
Mukono	Dairy cattle	3	2 (milk)
	Pigs	2	3
	Poultry	1	1 (broilers)
Soroti	Poultry	1	2
	Goat	2	3
	Cattle	3	4
	Pigs	NA	1
Lira	Poultry	1	2
	Rabbits	2	NA
	Pigs	NA	1
	Cattle	4	4
	Goats	3	3
Hoima	Cattle	4	1
	Poultry	1	2
	Goats	2	3
	Pigs	3	4

Figure 3: Frequency of enterprise selection under NAADS



Source: (NAADS annual report 2008/09)

Most households keep poultry for sale and rarely slaughter for household consumption. Consumption of poultry meat in rural households is mainly during ceremonial days like Christmas, Easter, and marriage ceremonies. In Soroti and Lira, goats and cattle are slaughtered at households only when there is a social ceremony like marriage, while pigs are strictly for income. In Mukono, milk is the major source of income from the dairy enterprises.

Table 2: Key livestock, apiculture and aquaculture selected by farmers under NAADS program

	Enterprises / Sub region	Aquaculture	Bee keeping	Animal Traction	Cattle	Goats	Pigs	Chickens
1	Acholi	2	225	136	274	418	106	102
2	Ankole	2	38	0	224	821	113	405
3	Buganda East	22	82	2	580	98	618	904
4	Buganda West	3	30	0	259	206	313	385
5	Bugisu-Sebei	0	3	0	289	94	154	569
6	Bukedi	13	4	0	191	459	84	775
7	Bunyoro	0	43	27	255	103	254	357
8	Busoga	26	39	7	303	149	373	1,129
9	Karamoja	0	211	1	0	275	48	236
10	Kigezi	13	21	0	127	255	170	370
11	Lango	11	399	65	4	229	35	14
12	Teso	3	151	0	152	336	117	628
13	Tooro	60	70	0	146	502	254	254
14	West Nile	3	99	0	30	911	138	138
	Grand Total	158	1,415	238	2,834	4,856	2,777	6,266

Source: (NAADS annual report 2008/09)

2.3 Husbandry systems

There are two main types of poultry husbandry systems in the country, namely, extensive and intensive depending on the management system (**Table 3**). These two systems can also be categorized into small-, medium-, and large-scale depending on the numbers kept. In all the districts visited, women and children play a big role in the day-to-day management of the poultry (about 75-90%) because women spend more time at home than men. They can take care of the birds at the same time they do housework or fieldwork. However, in Lira, it was pointed out that most men do not own chickens at subsistence level. Women and children can own chicken in a household and decide when to sell. On the other hand, when poultry is kept for income generation, men have to be consulted before selling. Traders, who also keep poultry, hire labor, especially boys who are able to lift heavy feeds and mix the feeds, as well as fetch water using a bicycle.

2.3.1 Extensive system

The indigenous, scavenger poultry keeping is based on local indigenous birds kept around peasant homesteads under the **extensive** management system. The birds are left to scavenge for their food during the day and kept in small shelters at night or in trees like some farmers in Soroti and Lira who have not built shelters (**Figure 4**). Baby chicks are hatched and reared by the hens. The hens produce about five clutches a year each of about 10 – 12 eggs. These birds have not had any scientific selections and are accorded a minimum of management attention and disease control. Although these birds have not been characterized, they could be an excellent resource as a base for genetic improvement and diversification to produce a breed adapted to Uganda's tropical environment. There have been very small-scale projects by Nongovernment Organizations (NGOs) and Community Based Organizations (CBOs) to upgrade the productivity of indigenous birds through cross-breeding with exotic cocks. These attempts have been uncoordinated and unsustainable to cause any visible impact.

The economic and nutrient contribution of the indigenous poultry has not been evaluated but is estimated to contribute over 80% of the per capita consumption of poultry meat and eggs (estimated at 1.62 kg, supplying 187 grams of protein per person per year (FAO 2008).

Figure 4: A local hen takes care of the scavenging guinea fowls in Soroti



2.3.2 Intensive system

According to FAO Country Review Report 2008, the **intensive** poultry farming was introduced in Uganda in the early 1950s, with the establishment of two government farms at Entebbe and Mbarara Stock farms. The intensive system constitutes less than 20% of the total poultry population in Uganda which is based on specialized breeds (FAO 2008). The system is mainly found in urban areas where there are markets for eggs and chicken meat. Producers in this production system endeavour to use recommended standard practices, such as improved breed of choice (layers or broilers) depending on the farmer's production objectives, appropriate housing, feeding, health, and disease control programs.

The intensive poultry system can be classified into the following categories:

- **Small-scale units.** The small-scale units are mainly privately owned farms of 100-500 layers/broilers. Though it is not a good practice to mix broilers and layers, it is presently common practice for farms to keep both types of birds on the same farm site in different houses. These farms are usually run by women with 1-2 assistants, and much of the labor is supplied by members of the family.
- **Medium-scale units.** The medium-scale farms are owned by individuals, companies, or farmers' groups, with a capacity of between 500-5,000 layers or broilers and are, therefore, more specialized in terms of production. This category also includes farms with parent breeding stock with hatching facilities.
- **Large-scale units.** The large-scale farms are mainly breeders with hatching facilities and with capacity of over 5,000 (layers and broilers). Currently, there are only three farmers falling under this category in Uganda. There are also large-scale commercial broiler and layer chicken farms having over 5,000 birds.

According to Ministry of Agriculture, about 30% of the total broiler chicken is from small-scale farms, with poultry population of below 1,000 birds. The large farms consisting of 1,000-60,000 birds constitute 70%.

2.3.3 Farmers' perception of the categories

According to respondents in the study area, producers in this study are those farmers who keep either local or commercial birds for table meat and eggs. Commercial farmers mainly keep improved breeds (exotic layers and broilers) under intensive systems. Subsistence farmers keep local poultry on free range or extensive system. Recently, however, some farmers have also started keeping local poultry for commercial purposes and, therefore, keep them under semi-intensive and intensive systems. This can be exemplified by two women farmers, one in Soroti and the other in Hoim, who keep poultry under intensive systems (**Figures 5 and 6**). Though the woman from Soroti has not reached production stage, the woman from Hoima has managed to feed her local birds (crosses) to get 70% egg production. Farmers in the study districts categorized both local and exotic farmers into small-, medium-, and large-scale based on the number of birds owned as indicated in **Table 4**. The numbers per category also vary with the region.

Figure 5: Farmer in Hoima keeps locals semi-intensively



Figure 6: Farmer broods improved locals in Soroti



Farmers and technical staff in Hoima categorize farmers based on economic returns expected from the enterprise and consideration of the economic viability. According to the veterinarian in Hoima, a small-scale layer farmer is expected to get more than Ushs 6m (2,260 US \$), 20m (8869\$) for medium-scale and above 20m for large-scale. Keeping less than 200 layers is not economical though a Gross Margin Analysis (GMA) needs to regularly be done since there is always change in cost of feeds, a major input for the poultry production enterprise.

The free range system is characterized by low productivity mostly due to the poor genetic potential, poor feeding, and diseases. Farmers under this category do not focus on disease control especially when they do not look at poultry keeping as an income generating enterprise. This category of farmers suffers great losses due to New Castle Disease (NCD) which kills 60-100% of the birds once it strikes. In Soroti and Lira, farmers are forced to sell their chickens cheaply in anticipation of NCD outbreak during the dry season. It is at this period that birds move long distances from homes looking for food, thus getting predisposed to the disease as they come in proximity of birds from different environments with different disease management systems.

Table 3: Types of husbandry practices in the study districts

District	Type of poultry	Husbandry practiced	Why?
Kampala	Broilers	Intensive	To prevent diseases Land limitation Limits movement resulting in weight gain
	Layers	Intensive	To prevent diseases Easiness to collect eggs
	Locals	Semi-intensive	For commercial purpose They grow better Reduces conflicts with neighbours, chances of disease outbreaks and thefts, They are hardy so they can survive harsh conditions They can easily find their way home unlike exotics
		Free range	Subsistence farming No feed costs
Soroti	Locals	Free range, shelter in kitchens/trees	Building is expensive Feeding in house expensive
	Locals	Intensive (Only three farmers in Soroti SC were said to house local chicken)	Commercial level production
	Broilers and layers (exotic)	Intensive	Disease control Not productive when they scavenge Commercial purpose, need more care
Lira	Local	Free range	
	Broilers and layers (exotic)	Intensive	Disease control Commercial purpose, need good management which cannot be offered when scavenging.
	Broilers	Semi-intensive	Due to inadequate money for feeds, some farmers let free broilers and to scavenge after completing all the vaccinations. It is urged that such broilers taste better than those completely housed.
Mukono	Local	Free range	For subsistence
	Local	Semi-intensive	Commercial production
	Layers and broilers	Intensive	Prone to disease; big numbers cannot be on free range as they can destroy neighbours food
Hoima	Local	Free range	For subsistence
	Local	Semi-intensive	Commercial
	Local	Intensive	Commercial
	Exotic	Intensive	Commercial

Table 4: Categorization of poultry farmers in areas of study

District	Farmer categorization by numbers			
	Category	Type of birds		
Kampala (central)		Local	Broiler	Layers
	Large scale	1000+	1000+	500+
	Medium scale	500-1000	500-1000	100-500
	Small scale	< 500	< 500	< 100
Mukono	Large scale	200+	1000+	1000+
	Medium scale	60-200	600-1000	600-1000
	Small scale	1-50	100-200	300
Soroti	Large scale	Above 40	Above 700	Above 700
	Medium scale	10-30	400 - 700	400 - 700
	Small scale	1-10	100 - 400	100 - 400
Lira	Large scale	100+	500+	600+
	Medium scale	30-100	200+-500	200-600
	Small scale	Less than 30	100-200	100-200
Hoima	Large scale	50+	All dr. Ntume/Kajura	
	Medium scale	10-50		
	Small scale	1-10		

According to a study conducted in Kumi and Bushenyi on Production, Management, and Marketing Dynamics of the Rural Scavenging Poultry in Uganda (Byarugaba, D. K., Olsen J. E. and Katunguka-Rwakishaya, E – accessed from the internet on 17th September 2010), indigenous chickens were not housed (96%), but the few who housed the poultry did so in kitchens (55%), separate shelters (30%), or in the sleeping houses (15%). This predisposes people to the deadly Avian Influenza. Forty-seven percent of the farmers provide supplementary feeds which are mainly leftovers from the house or cereal grain during bumper harvests. This is done any time of the day but more so in evenings as the chickens come back home. No water is provided to the chickens (90%) because most farmers (89%) think that the water is not necessary. Poor management is a common practice among people keeping local birds. Improved management of the scavenging birds would greatly improve livelihoods of women and children who mainly take care of the indigenous chickens. However, most farmers keeping local poultry do not take it as a business yet they have a big potential to alleviate poverty. A lot needs to be done to change their attitude through training and exchange visits.

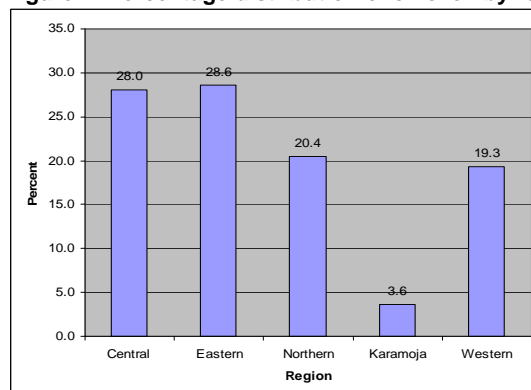
2.4 Supply outlook

2.4.1 Poultry distribution

Chickens are found throughout the country and account for more than 90% of all poultry (**Figure 7**). The indigenous comprise 87.7% of all chickens, the rest are exotic types (**Figures 8, 9, &10**). Traditionally, poultry keeping in Uganda has been a backyard business with domestic strains being used. This is still the case to a certain extent; however, due to economic growth and increased demand, improved breeds and professional raising methods have found their way to the country too, offering reasonable benefits to farmers. There are no distinct features which differentiate the types; therefore, chickens may be named according to the place of origin. According to the traders, local chicken from the East and North are better layers due to the small sizes, while those from the West are better for meat due to the larger size. This is an important issue especially for researchers and intending breeders of the local birds to consider such characteristics. Exotic breeds (layers and broilers) have been introduced from United Kingdom (Rhode Island Red, Shaver); Holland (Hubbard; Hybro; Black Nera; Bovans Brown; Hyssex Brown); USA (Isabrown); and from Zambia.

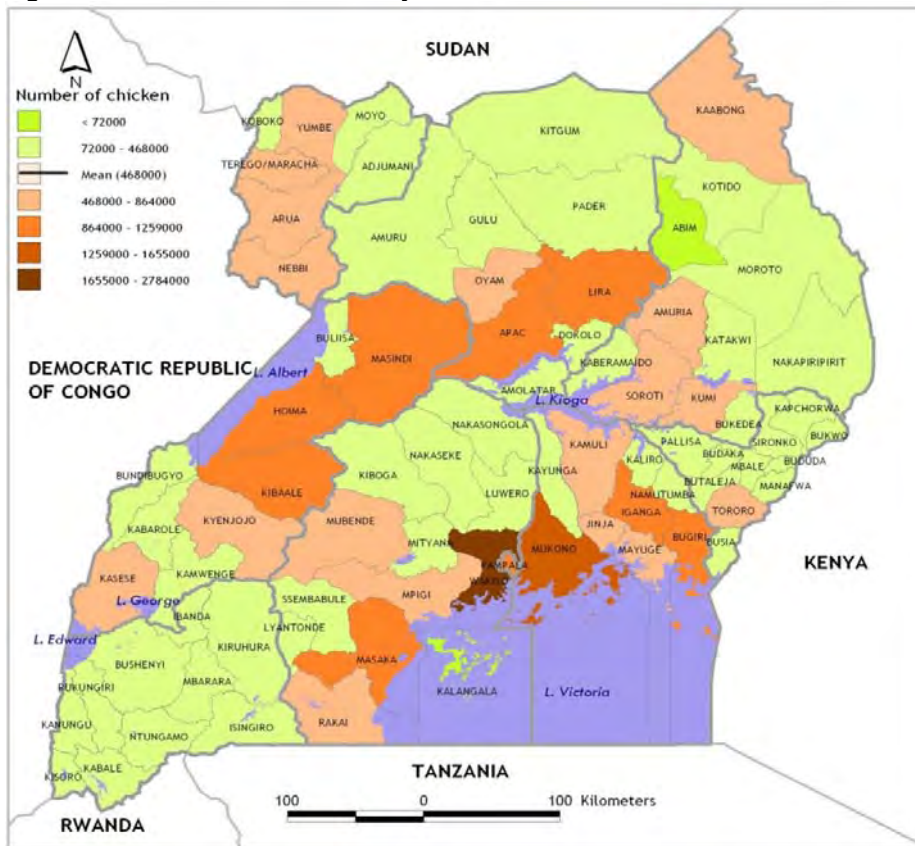
Figure 7 shows that the highest poultry population is in the East, and least in Karamoja where pastoralism is practiced.

Figure 7: Percentage distribution of chicken by region



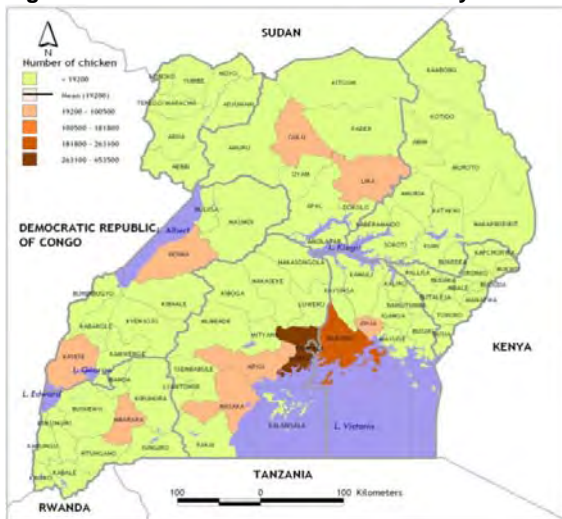
Source: MAAIF & UBOS 2009

Figure 8: Total number of chickens by district



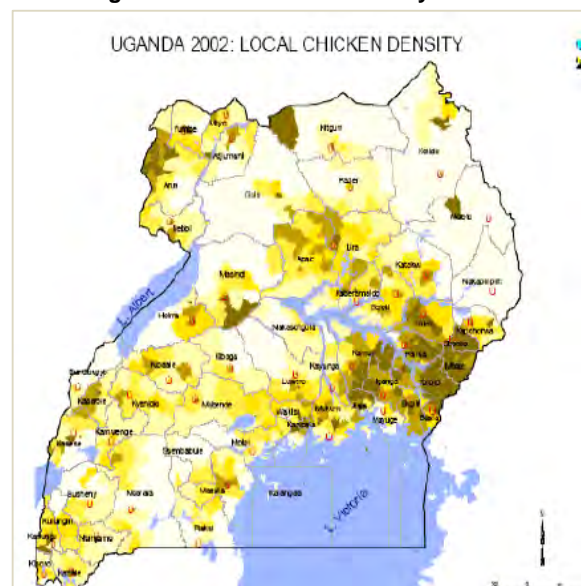
Source: MAAIF/UBOS Livestock Census Report, 2008

Figure 9: Total number of exotic broilers by district



Source: MAAIF/UBOS Livestock Census Report, 2008

Figure 10: Local chicken density



Figures 9 and 10 indicate that the highest concentration of exotic chicken is around towns and urban centers where the high cost of production is compensated by the high demand for poultry meat and eggs. The highest concentration of indigenous chicken is in the Eastern and Northern parts of the country where there is great potential for further development of the local poultry.

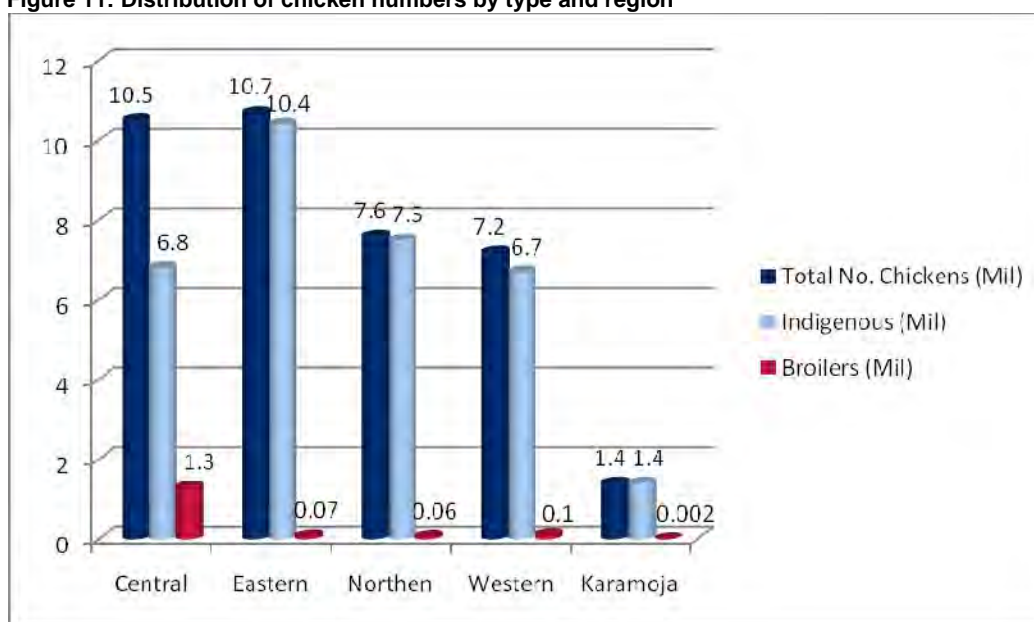
Table 5 gives the number of different types of chicken according to regions and **Figure 11** graphically depicts this distribution.

Table 5: Chicken breed numbers by region

Region	All chickens			Indigenous			Exotic broilers		
	Number	Adult male, %	Adult female, %	Number	Adult male, %	Adult female, %	Number	Adult male, %	Adult female, %
UGANDA	37,443,880	13.0	34.2	32,834,580	12.3	32.3	1,536,500	44.4	0.0
Central	10,530,430	14.8	41.0	6,820,930	13.2	38.0	1,255,100	41.5	0.0
Eastern	10,696,100	10.8	30.5	10,413,170	10.6	29.9	74,040	58.3	0.0
Northern	7,644,420	13.3	28.1	7,516,770	13.1	28.0	61,660	51.2	0.0
Western	7,210,120	11.9	36.3	6,728,620	11.5	35.2	143,390	58.4	0.0
Karamoja Zone	1,362,820	19.1	32.5	1,355,090	19.1	32.5	2,300	76.7	0.0

Source: MAAIF/UBOS Livestock Census Report, 2008

Figure 11: Distribution of chicken numbers by type and region



Source: MAAIF/UBOS Livestock Census Report, 2008

Other poultry

Though chicken accounts for the biggest poultry population, other types exist. Turkeys were first introduced in 1950 by the colonial government from America. They were first multiplied at Entebbe and Mbarara Stock Farm, and later on local farmers were encouraged to keep them. Today turkeys are found in many parts of the country. The highest concentrations are found in Soroti, Pallisa, and Kumi, and to some extent in Lira and Apac.

The present ducks are crossbreeds of the original ducks imported from Britain. They have a mixture of white and black features. They are present throughout the country, especially in urban and peri-urban areas but more in the Eastern region.

2.4.2 Source of the birds

The present national setting capacity for the hatcheries is 510,000 eggs per week. **Table 6** lists the major hatcheries and their operational capacities.

Table 6: List of major hatcheries and operational capacities

Name	Installed capacity	Current % utilization	No. of chicks/wk
Ugachick (Magyigye)	120,000	100%	90,000
Bokomo (Seeta)	40,000	100%	28,000
Biyinzika (Seeta)	90,000	30%	24,000
Prisons (Kigo)	40,000	15%	6,000
LES (Entebbe)	16,800	40%	5,000
Bulemezi (Bweyogerere)	13,000	60%	7,000
Kiyita (Kasangati)	24,000	40%	8,000
Nsambya Catholic (Nsambya)	12,000	60%	6,000
Senda (Mukono)	11,000	67%	6,630
Kagodo (Makindye)	40,000	75%	23,000
Walusimbi (Kira)	12,000	45%	4,800
Kiwanuka (Kabowa)	4,000	50%	1,600
Gesica (Namugongo)	12,000	58%	6,000
Others	9,000	-	-

Source: MAAIF&UBOS 2009

Most of the eggs come from parent stock farms owned by the hatchery operators. However, contract hatching egg production is beginning to be practiced. Farmers raise parent stock and take eggs to the hatchery at a cost of Ushs 150-200 per egg. Likewise, the local farmers also collect eggs and take to the hatchery for hatching at the same cost as commercial chickens. The chicks are either sold to other farmers or kept by the farmer who hatches them out for table meat and eggs. Some of the local farmers use synchronized hatching to get a big number of chicks to expand their enterprise (two or more chickens are made to start brooding at the same time and hatch at the same time, enabling the farmers to have big numbers of chicks at the same time for easy management and marketing). While there are several hatcheries in Central region, Hoima has only one hatchery on Angella Farm within the Town Council and has a capacity of 10,000 chicks per month and a layer parent stock of 1,200 birds, currently hatching out 2,500 chicks per week. Lira has only one upcoming hatchery on AJP farm, Barapwo Village, Lira Town Council, which has 1,000 layer parent stock and has imported a hatchery with a capacity of 19,000 chicks per month.

Despite the existing hatcheries, as most do not perform to full capacity due to limited finances, the supply of day old chicks (DOCs), therefore, does not satisfy the demand. To supplement the supply from hatcheries, there are a few individuals and companies which import into the country some good quality layer and broiler chicks. In Uganda, Ugachick Poultry Breeders Ltd. continues to be a major player in the Ugandan poultry sector, owning one of the largest feed mills, a hatchery, bird rearing units, and a bird processing unit capable of processing up to 30,000 birds daily. However, most of the hatcheries in the country often import parent stock as fertile eggs, which are then hatched domestically. A number of the larger hatcheries and breeding companies also have contract broiler rearing schemes in place, through which they provide DOCs to contract farmers who then grow them. These birds are then sold back to the breeders/hatcheries when they have reached the required market weight, leaving a reasonable profit for the growers. Local and improved local birds are also hatched out according to the demand.

2.4.3 Feed supplies and feeding

Feed supplies

Poultry feeds constitute the highest cost of any poultry enterprise accounting for 60-70% of the costs particularly in the intensive production systems. Uganda is almost 100% self-sufficient in the production of all its poultry feed requirements, although some imports of mainly vitamins and a few other additives continue. In order to cut costs by Ugandan poultry producers, feeds are comprised of mostly by-products of maize and wheat flour milling as major sources of energy. Also, the supply of protein for the Ugandan poultry industry continues to come mostly from domestic sources (fish and soya). Other locally produced ingredients include cotton seed cake and sunflower cake. With regard to poultry feed packaging and labelling, it is a requirement that all the commercial feed mills clearly show on each feed bag all the components and percentages of the ingredients, date of manufacture, as well as sell-by date. This requirement, however, is in many cases not fully enforced by the relevant authorities.

Table 7 shows the major feed mills producing poultry feeds for commercial purposes.

Table 7: List of feed factories

Name	Installed Capacity	Present Production
Creda Africa	40 tons/wk	Not known
Liberty Trading Co. Ltd	200 tons/wk	Closed
Formula feeds	40 tons/wk	15 tons per week
Catholic Secretariat	42 tons/wk	6 tons/wk
Engaano Millers Ltd.	60,000 MT/per annum	1,100 MT/per annum
Bulemezi Farm Enterprises	32 tons/day	5 tons/day
Ugachick Poultry Breeders	10 MT/hr	6-7 MT/hr
Kagodo Farm	45 tons/day	20-22 tons/day
Hill Top	1.5MT/hr	1.5 MT/hr

Source: MAAIF/UBOS Livestock Census Report, 2008

There are, however, over 70 small-scale feed producers who are not mechanized. While Soroti and Lira (North and East, in particular) produce a large number of poultry feed ingredients (maize, sunflower, cotton, soya), one would expect to find feed factories/millers in these areas. Nevertheless, the study showed that there were no feed millers in Soroti and Lira. The Soroti feed miller stopped due to inadequate market for the feeds. However, it was noted that poultry production was on the increase in Hoima with several feed millers, namely, Vetcare Animal and Poultry feeds; Savannah Poultry Feeds; Mugisa Poultry Feeds; TZ grain millers, and Mwije feeds. It was noted with concern that most feed millers concentrate on feeds for commercial birds, leaving out local birds. Most millers and technical people do not have formulae for local birds.

While feed production has increased from 32,000 MT in 1993 to current production of 80,000 MT (85% of which is poultry feed), present capacity utilization is still low in the order of 40-45% of the installed capacity (MAAIF/UBOS 2008). Due to seasonal fluctuations of feed ingredients, output of feed mills varies considerably from season to season making supplies, quality, and prices irregular to farmers. Lack of storage facilities for the maize, a major ingredient, aggravates the situation. Quality is inconsistent between various manufacturers and also within the same company from season to season. Generally, there is lack of technically qualified staff in feed processing, and laboratory facilities for regular monitoring of the quality. Some farmers have resorted to on-farm mixing of feeds because it is cheaper; however, quality of such feeds is in many cases compromised because of non-uniform mixing, improper formulations, and use of adulterated feed ingredients as well as using low ratios as farmers try to minimize costs. There is a notable lack of feed formulations for indigenous birds. These are normally left to scavenge most of the time. Those that are supplemented only access maize bran and possibly kitchen and garden leftovers, maize, and sorghum seed during harvesting as pointed out in Soroti and Lira.

It must be noted that there is no law governing the feeds industry and, therefore, it is impossible to apprehend anyone adulterating feeds or feed ingredients. This has resulted in feed millers continuously selling poor quality feeds to unsuspecting farmers, causing low productivity and too

expensive for the farmers as they do not get quality for money. **Table 8** shows the most widely used feed ingredients for poultry feeding in the country.

Table 8: Production of selected food crops in thousand tons (2004 – 2009)

Crop	2004	2005	2006	2007	2008	2009	Projected 2010
Cereals							
Finger millet	659	672	687	732	783	841	903
Maize	1,080	1,237	1,258	1,262	1,266	1272	1282
Sorghum	399	449	440	458	477	497	519
Rice	121	153	154	162	171	181	192
Wheat	15	15	18	19	19	20	20
Total	2,274	2,526	2,557	2,633	2,716	2,811	2,916
Root crops							
Cassava	5,500	5,576	4,926	4,973	5,072	5179	5293
Legumes							
Soya beans	158	158	175	176	178	180	181
Sunflower	164	173	186	201	217	234	253

Source: MAAIF& UBOS, 2009

Uganda is endowed with good climate and soils conducive for growing a variety of crops. This is an opportunity for the poultry industry as the country produces all the crops that are major in making poultry feeds. Though maize, sunflower, soya, and cotton seedcake are important for commercial feeds for layers and broilers, other crops like millet, cassava, and rice could be used for making low-cost feeds for indigenous/local poultry. Brewers' mash from millet after making the local brew is good feed for the local birds though quite often is left to waste, especially in the East and North where the brewing is common.

Figure 12 depicts the distribution of the five major feed ingredients for poultry feeding, namely, maize, cassava, sunflower, sorghum, and millet. It is clear from the map that most of these ingredients are produced in the North and Eastern parts of the country. Most feed factories are located in and around Kampala and Jinja, far from areas of high cereal and other input production. Since most inputs and poultry feeds themselves are bulky, transport to and from makes final products expensive. Local poultry is mainly in North and East while exotic commercial layers and broilers are more in the central region due to the proximity of markets.

Table 9 indicates that a lot of maize and coffee husks are being exported out of the country. The export of whole maize out of the country, particularly to neighboring countries, has caused a deficit in the most wanted feed ingredient for poultry feeding with attendant high costs of production. The scarcity of coffee husks (best litter for poultry in Uganda) has been aggravated by its increasing use as a source of fuel in the cement industry, and the price has gone up from a mere 1,000 shs in the late 80s to 6,000 shs to date for a sack of husks. This has forced some farmers to use materials such as sawdust, wood shavings, and rice husks for litter. All these materials are bad moisture absorbers and, therefore, render the poultry houses soggy thus predisposing the birds to diseases due to unhygienic conditions. Further, some birds have been found to choke or suffer impaction after ingesting some of these materials, while the dusty sawdust predisposes the birds to respiratory diseases.

When coffee husks are used as litter, the expired litter can easily be converted to feed (for pigs, cattle, goats, sheep, and fish) and conveniently used for manure without any dangerous effects to either the animals or the soil, unlike wood husks and sawdust.

Feeding

Local birds on free range are left to scavenge; however, if housed, they are fed on commercial feeds like layers (chick and duck mash for the first two months; grower's mash up to point of lay; and layer's mash thereafter) and sometimes only maize bran. Farmers in Soroti and Lira provide extra feeding during harvest time when there is plenty of maize, sorghum, and millet.

Broilers are fed on broiler starter for the first month and broiler finisher for the second month until they are sold off. Most farmers buy chick and duck marsh from feed millers/agents, as they consider this a delicate stage but mix their own feeds thereafter. Though farmers find it cheaper to mix own feeds, some try to minimize feed costs by reducing on the ratios of the feed ingredients, compromising on quality, which results in poor growth and productivity. Farmers also prefer making own feeds due to poor feeds made by some feed millers. It has been noted that there could be as many formulae as there are poultry farmers. Farmers in Mukono also feed banana peels mixed with maize bran to local chicken.

Figure 12: Distribution of the five major poultry feed ingredients

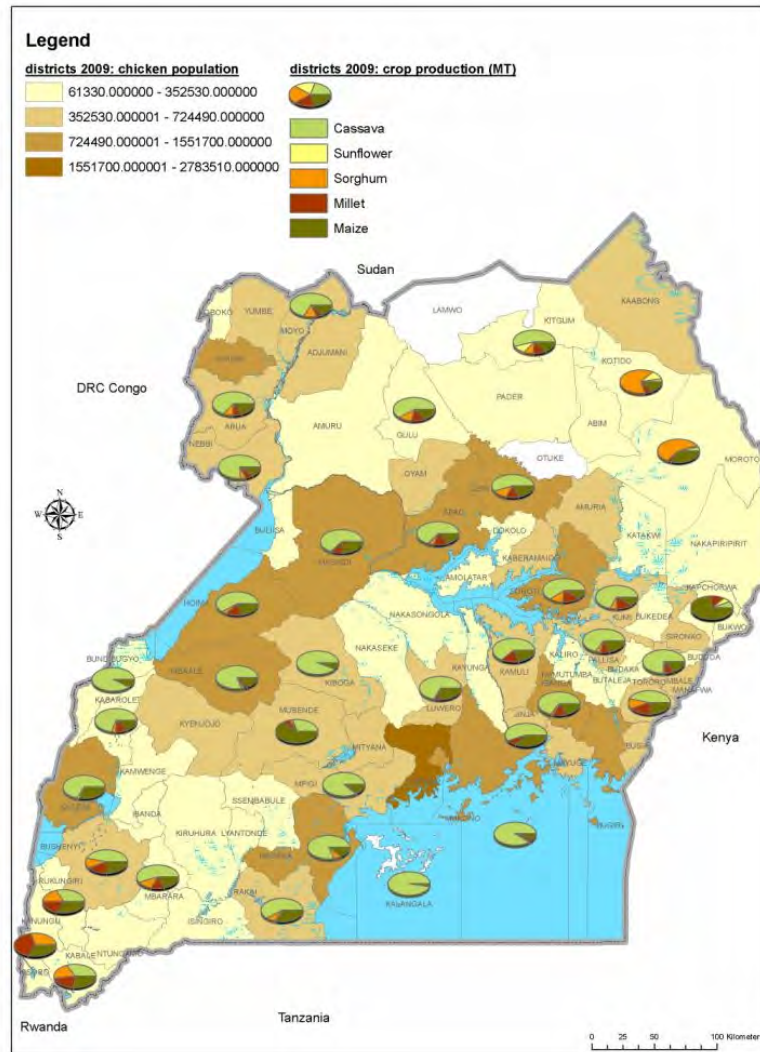


Table 9: Top exports-Uganda 2007

	Commodity	Quantity (tons)	Flag	Value (1000 \$)	Unit value (\$/ton)
1	Coffee, green	153987		226966	1474
2	Tobacco, unmanufactured	25055		65973	2633
3	Tea	44015		47629	1082
4	Oil Hydrogenated	25975		45059	1735
5	Beer of Barley	45922		23049	502
6	Sugar Raw Centrifugal	44591		21049	472
7	Cotton Carded,Combed	16067		19388	1207
8	Cocoa beans	9404		15936	1695
9	Palm oil	19586		15840	809
10	Food Prep Nes	12281		15453	1258
11	Maize	56254		11981	213
12	Sugar Refined	27613		11719	424
13	Flour of Maize	44069		11092	252
14	Coffee Husks and Skins	6025		10079	1673
15	Pastry	6829	*	8175	1197
16	Cotton Linter	6388		7156	1120
17	Peas, dry	11778		6658	565
18	Rice Broken	23271		6610	284
19	Vanilla	422		6262	14839
20	Sesame seed	5945		5447	916

* :	Unofficial figure
-----	-------------------

[] :	Official data
-------	---------------

Source: FAOSTAT Data

Farmers in Lira and Soroti had no idea about feed formulation as the few who keep exotic birds buy already mixed feeds from feed millers. Examples of feed formulations by farmers in Kampala are indicated in **Table 10**. It should be noted that most farmers and feed millers have 'feed recipes' and not formulae as they do not base feed formulations on required nutrient levels but just have ratios of feed ingredients for the different types of poultry. Most farmers and feed millers do not have the information on required nutrient levels.

In Hoima, like other districts, exotic birds are fed on industrial mixed feeds. Local birds are on free range for most farmers. A few like Mrs. Koojo Plaxeda and others in her group have taken up local poultry and improved locals (cross breed of local chicken and layer cocks) for commercial production. The birds are kept on semi-intensive or intensive management systems, depending on capacity to feed and house them. Chicks are fed on chick and duck marsh. In order to reduce on feed expenses, the farmers mix their own grower's feed using own formula, e.g., 100 kg bran, 8 kg fish, 6 kg cotton seed cake, 4 kg sunflower cake, 4kg shells, ½ kg premix, and 1 kg salt. However, the chickens are fed on layer's marsh when they start laying. Table 10 shows broiler rations as indicated from one of the farmers group in Makindye, Kampala District.

Most farmers have no knowledge about the quality of feeds that they buy. Traders in Nakasero, who are farmers at the same time, use one formula for broiler: maize bran 100kg, fish 20kg, cotton seed cake 20kg, 1kg salt, 1kg premix, 5kg shell; and one formula for layers: maize bran 100kg, fish 15kg, cotton seed cake 10kg, 1kg salt, 1kg premix, 10kg shell. There is no feed analysis carried out by the Uganda Bureau of Standards leaving farmers at the mercy of unscrupulous traders.

Table 10: Broilers' ratios (Kampala District)

Item	Broiler starter in (kg)	Broiler finisher in kg)	Growers/pullets in kg	Layer in kg
Maize bran	100	100	100	100
Fish	30	15	12	15
Cotton seed cake	30	15	12	12
Sunflower cake	-	-	12	12
Shells	20	10	8	8
Premix	0.5	0.25	0.5	0.5
Salt	1	0.5	1 (brown)	1 (brown)
Blood	-	10	-	-

2.5 Poultry processing

Most chicken is sold live. Only Ugachick Poultry Breeders has a slaughter plant. The products from here dominate the market in supermarkets and shops. These are fairly hygienically handled and packed whole and in pieces (drumsticks, thighs, wings, gizzards). The chickens are consumed within the country and also exported to Kenya, Rwanda, Burundi, and Tanzania. Some small-scale farmers are also picking up the process of value addition by processing and packaging for sale to supermarkets. The main problem remains poor sanitary conditions during processing.

Figure 13: Chicken bleeding and handling processed chicken at Ugachick



There are several other 'processing facilities'¹ within markets in town and urban centers; however, their hygienic standards leave a lot to be desired (**Figures 13, 14, 15, 16**). Products on the market are unprofessionally handled, resulting in lack of grades and standards, and expensive products presented to a market dominated by low incomes and, therefore, low purchasing power.

¹ Processing in this report is defined as slaughtering, defeathering, and evisceration (removal of offals) of the chicken/birds

Figure14: Bleeding chicken and slaughter in a market



Figure 15: Chicken slaughter and processing in a makeshift market



Figure 16: Processing at Nakasero market in Kampala



2.6 Market outlook

2.6.1 Demand for poultry and poultry products

Overall, the demand for poultry and eggs is on the increase. Though information on demand for poultry was scanty, it can be assessed retrospectively based on the increase in production and consumption of poultry meat and eggs (Tables 11 & 12). Demand drivers for poultry and eggs include population increase, change in eating habits with more demand for fast foods like chicken and chips (french fries) among the youth and around beer drinking places in urban areas and higher institutions of learning like universities. The demand also depends on taste preference. The local chicken is preferred by most Ugandans for its taste and strong meat and is, therefore, served in most local restaurants and hotels, while the soft, easy-to-cook broiler meat is preferred by most big hotels where there are tourists and international visitors during meetings. Broilers are also cheaper than local chicken, hence their preference by hotels as they lower the expenditures and bring better profits for the proprietors.

Table 11: Trends in annual production of meat and eggs

Product	Year				Annual growth rate	
	1980	1990	2000	2002	1980-1990	1990-2000
Poultry	20.3	29.6	44.1	53.6	3.9	4.1
Eggs	10.6					

Source: FAO (2005a)

Table 12: Trends in annual consumption of meat and eggs

Product	Year				Annual growth rate	
	1980	1990	2000	2002	1980-1990	1990-2000
Poultry	20.3	29.6	44.1	53.6	3.9	4.1
Eggs	7.9	11.4	14.9	14.4	3.7	2.7

Source: FAO (2005a)

Tables 11 and 12 indicate that there is an increase in production and consumption of poultry and poultry products. They also indicate that there was high demand for poultry meat since whatever was produced was consumed unlike the eggs where some could have been exported.

According to World Poultry News letter of September 2006 (www.WorldPoultrynews.com/industrial-growth-in-Uganda-555.html, accessed 13th Sept 2010), Uganda's domestic chicken industry experienced strong expansion, particularly in the production of DOCs, meat, and eggs. Overall, demand for chicken meat was estimated to be growing by 20-25% per annum, while the demand for eggs was said to be growing at up to 30% per annum. This was closely related with the construction of internationally reputable hotels and scheduled significant events (such as the Commonwealth Heads of Government meeting that was coming up in the region). This was expected to continue as more tourists consider Uganda as a holiday destination. It was estimated that by March-April 2006, the number of DOCs produced domestically increased by nearly 50%. Ugandan commercial chicken growers pointed out that this development resulted in lower DOC prices and more stable supply. However, there was no updated information on trends in annual demand, production, and consumption.

2.6.2 Per capita consumption

The country's human population has been growing at a very high rate. In Uganda, it has grown from 12 million in 1980 to 24.6 million in the year 2002, and currently stands at 33.4 million. This has been accompanied by increases in urban migration. These factors have put pressure on land and other resources for production of food and other necessities to meet the needs of the population. This demands the use of farming systems and/or enterprises that maximize yield per unit area and input. Poultry production has been identified as one of the enterprises that can be undertaken to meet this challenge.

The country's positive economic growth and development, which has been in the range of 5-8% over the past 10 years, has also been reflected in the continuing positive growth trends in production and consumption of poultry products in the country. From 2000-2006, egg consumption per capita increased considerably (36%), and poultry meat consumption rose by over 60% (**Table 13**). Consumption of poultry has increased from 1 kg in 1996 to 2.5 kgs to date, and 80 % of broiler meat is consumed locally (UNHS, 2006).

Table 13: Per capita and poultry meat consumption in Uganda from 2000 to 2008

Year	Eggs (number)	Meat (grams)
2000	25	1,400
2002	28	1,800
2004	29	2,200
2006	32	2,300
2008	34	2,500

Source: MAAIF Planning Statistics

In 2008, the country produced 44,000 tons of broiler meat (**Table 14**). From 2004-2008, the poultry meat increased by 16.7% and the poultry population by 16.8%. Present production is about 84,000 tons of poultry meat and 56,000 tons of eggs.

Table 14: National poultry meat production 2000-2008

Year	2000	2002	2004	2006	2008
Chicken meat in ton	44,090	53,625	37,700	43,618	44,018

Source FAO Statistics

Poultry meat and egg consumption are expected to increase with increasing population in the country and within the region. The country population is expected to grow as depicted in **Table 15**. This implies that in order to maintain the current per capita consumption, the country needs to produce at least 93,380 metric tons of poultry meat by 2020.

Table 15: Projected growth in country population

Year	2010	2020	2030	2040	2050
Population (millions)	33.40	47.69	67.29	93.63	130.9

Although the meat and eggs from village birds continue to be well-liked by many Ugandan consumers who prefer the longer grown, hardier meat and eggs with a much deeper yellow yolk, the biggest supply of poultry meat and eggs to households, hotels, restaurants, and other catering units, and the retail and wholesale sectors of the market in Uganda continues to come from the modern bird breeds. Most village birds in Uganda come from the many British introductions into the country, dating back to the 1920s and 1930s when Uganda was still a colony of Great Britain. Today, most of the village bird population in Uganda is made up of many cross breed varieties dating back from this period.

Poultry meat is, of course, not the only meat consumed in Uganda. Rising levels in its consumption, however, can be partly attributed to the rapidly rising number of fast food outlets selling ready-to-eat poultry meat and eggs in a clean attractive environment. This is encouraging more people who had previously been eating poultry products only occasionally to now consume them on a more regular basis. These fast food outlets serve the needs of the growing number of young middle-class people who often don't have time to cook for themselves. In addition, the price of poultry dishes served from these fast food outlets is usually pocket-friendly, making them affordable for those even in lower income levels. These fast food chicken and other poultry products outlets are also popular with the ever increasing number of tourists visiting Uganda every year. Besides there is an increasing demand for poultry and poultry products in the regional market in the countries of Eastern DRC, South Sudan, Rwanda, and Burundi whose income per capita is increasing as well as population.

2.6.3 Markets and marketing

There is generally lack of organized poultry marketing infrastructure in the country. Marketing is carried out by traders who buy and sell live poultry and poultry products from different markets (primary, secondary, and urban) either for themselves or for somebody else as middlemen (**Figure 17**). There are as many marketing centers as there are subcounties in the country. At least every subcounty has a weekly market where farmers sell their animals/poultry and buy other merchandise. Local, off layers, broilers, chicken, and eggs can be bought from the farm by the traders or the farmer selling at the designated markets in rural or urban areas. At the farm, all members of the household are involved in marketing of their own local chicken. This mainly involves women and children, since they own most chicken, except where local poultry is a family project as a source of income; in that case, the men have to be consulted before selling. Chicken is usually sold live to traders who take to the secondary market in designated market places in the villages or in urban areas who sell to consumers. Consumers can be neighbors, hotels, supermarkets, or individuals who buy for home consumption. Live poultry is transported by the farmers to the weekly markets by bicycles, motorcycles, and taxis predisposing people to Avian Influenza (**Figures 18 & 19**). Some farmers sell their chicken on roadside markets.

Figure 17: Trader bargaining in Soroti central market



Figure 18: Transporting chicken in Lira



Figure 19: Market place for poultry at Hoima Central Market; transporting birds in the East



2.6.4 Marketing chain

Most farmers sell birds live direct to consumers for home consumption or to traders/vendors, except around urban areas where there is preference for dressed chicken especially by hotels. Traders in Kampala, including Ugachick Breeders Ltd and large-scale farmers like Akonyi in Lira, sell processed chicken. Generally, traders buy the broilers and off layers direct from farms. Poultry and eggs have local and regional markets. From the study traders around Kampala, Lira, and Soroti sell poultry to hotels, individual consumers, Sudan, and Rwanda, while in Soroti, chicken is sold to traders from Kampala, Sudan, and the Democratic Republic of Congo (DRC). It is important to note that in Soroti, most farmers do not buy from neighbors since each household has poultry. However, in cases of abrupt visitors and where the host does not have mature birds, households borrow from each other and pay when their chicken comes of age. Broilers are sold at 6-8 weeks, while local birds after attaining at least one kg live weight. The price of local chicken depends on the size and weight. Though there are no weighing machines, traders and farmers alike gauge the weight by lifting the chicken and feeling the size of the breast muscle.

Information from Ugachick that controls over 60% of the total number of exotic birds produced in the country indicated that Tanzania is the leading consumer of DOCs while Rwanda is the largest consumer of ready-for-consumption dressed chicken. About 25% of the chicken produced in Uganda is exported and the rest is consumed locally, with households leading in consumption.

(Source: Internet: The Poultry Site News Desk 16 Sept 2010)

The main marketing channels as ranked in the four study (rural) districts are depicted in the **Figure 20**.

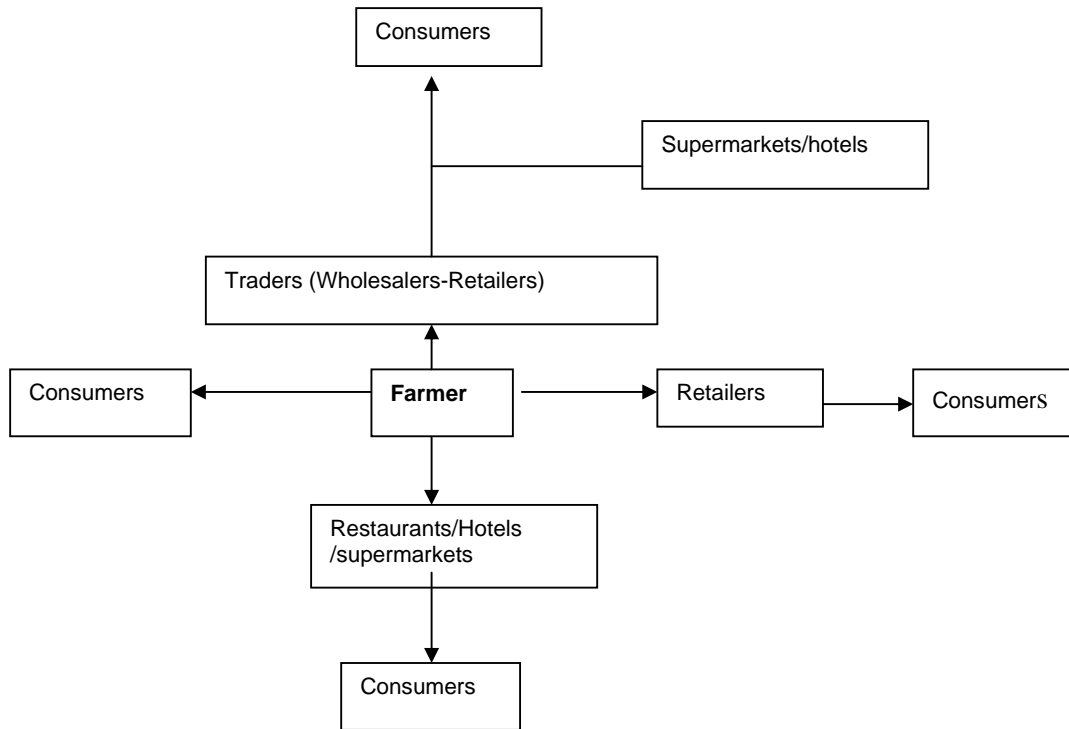
Figure 20: Marketing channels

Mukono	Poultry-----4-----	Neighbors
	Poultry-----1-----	Hotels
	Poultry-----2-----	Supermarkets
	Poultry-----3-----	Chicken roasters
Soroti	Poultry-----3-----	Neighbors
	Poultry-----1-----	Traders
	Poultry-----2-----	Chicken roasters
Lira	Poultry-----4-----	Neighbors
	Poultry-----1-----	Traders
	Poultry-----2-----	Hotels/supermarkets
	Poultry-----3-----	Chicken roasters
Hoima	Poultry-----4-----	Neighbors
	Poultry-----1-----	Traders
	Poultry-----2-----	Hotels/Supermarkets
	Poultry-----3-----	Chicken roasters

The marketing chain is simple and undeveloped with no infrastructure at all in markets except for some stalls in towns.

In Kampala, processing is done at a cost of ush 200 within slaughter houses around the live markets such as Nakasero, Kalerwe, and Nakulabye. In Soroti, and Hoima, dressed chicken is only done on request by individuals at a cost of ush 1000. Processed chicken is also sold to hotels and supermarkets. Marketing of other species like guinea fowls, pigeons, and turkeys is mainly in secondary markets and is seasonal for turkeys which sell mainly during festive seasons (Christmas and Easter) to other places outside Lira and Soroti. However, in Soroti and Lira, they are processed and sold at the beef butcheries.

Figure 21: Supply chain for chicken



Quite often, some of the broiler and layer farmers have over time established reliable customers such as hotels, restaurants, or roadside roasted chicken sellers or middlemen who will always pick up the chicken and eggs from the farms and transport them to the consumer points or to secondary retailers. Others also deliver the products directly to their customers live or processed depending on customer preference.

Some more organized companies such as Ugachick have introduced an outgrower system under a contract farming scheme. Farmers are given either broiler DOCs and feeds, who later sell their products back to the company for processing and subsequent marketing. The costs of chicks and feed are deducted before payment. Such systems help farmers to start off the poultry business with Ugachick’s support by giving the capital in terms of chicks and feed. This system is sustainable as long as there is trust and contacts are honored. The farmers are also given support for their business in terms of training in poultry management, vaccinations, and extension services. Currently, Ugachick has four outgrowers who buy 1,000 broiler chicks per week, and eight farmers who buy 5,000 broiler chicks per week. These farmers are assured of the market for their table birds as they sell them to Ugachick who process and sell to supermarkets, hotels, and other outlets.

2.6.5 Types of markets

Informal Market. These markets are within the villages, possibly selling from farmer to farmer or to retailers. The main purpose of selling is to get income; however, sometimes fellow farmers who need a particular hen or cock for breeding may demand the purchase from a neighbor. Some farmers give their chickens to children to take to the roadside to sell in areas where there are main trunk roads. Often chickens are bartered for larger animals such as goats.

Primary market. Generally, these markets are formed by several villages within a parish and are often unfenced areas with few or no facilities (perimeter fence, loading ramp, holdings, and toilets). They are held on gazetted days of the week. Traders also purchase chickens from several adjacent primary markets during the course of a week and truck them to destinations within or outside Uganda. This is where the majority of the rural farmers go to sell their chickens and also buy various household items from the incomes. If farmers are to have an impact on better incomes from their chicken, then it is at primary market where they should do it as many of them participate at this level.

Secondary markets. These markets normally have a larger throughput than that of primary markets but also lack proper weighing, loading, and hygienic facilities. Traders often come with trucks to buy a full load for immediate transportation to larger centers such as Kampala. Animals are sold according to size, age, and appearance through negotiations between sellers and butchers/traders/farmers. The number of farmers at secondary markets is small and comprised of those who are close to the market. The level of taxes and various players also is increased at this market. There are more men involved in the trade of chickens. Sometimes the sellers are thus often disadvantaged, i.e., 1) if only a few traders are present with whom to negotiate; 2) because they normally do not know the prices of chicken in the urban centers; and 3) because they are often selling under pressure, such as the need to meet an immediate cash need and do not want to risk losing a sale. However, in the districts where large numbers of chicken are available for sale and more traders exist, sellers are better able to bargain for fairer prices.

Urban markets. These markets are in larger towns and cities. Often, there are designated areas where makeshift chicken stalls are erected. Suppliers to such markets are traders who buy from secondary markets, place chickens on taxi racks and take to towns. Consumers from such urban markets are hotels, restaurants, and some affluent city dwellers. An ordinary farmer or consumer is not likely to buy from such a market because the prices are higher, except on festive days like Christmas.

Marketing of eggs from the exotic layers is not very different with the small-scale farmers selling a few trays to neighbors or retailers within their vicinity. However, the medium- to large-scale producers transport their eggs on bicycles, motorcycles, or trucks to further destinations where they are likely to get better prices for their produce. Local poultry from the East and North are transported on top of taxis that also carry people, while most traders in Kampala have their own pickup vehicles used to get chicken from the farms or market places. Some large-scale producers have contracts to supply institutions and organizations such as World Food Program (WFP). A few farmers are exporting to countries within the region and have gotten a better bargain. The eggs from indigenous chicken are not usually considered for regular sale because they keep them for hatching as their main objective. However, when they are available for sale, they normally bring higher prices than those from exotic layers. Egg marketing is generally characterized by lack of grading and unhygienic handling of eggs. Often they stay very long on the shelf under poor storage conditions.

2.6.6 Price mark-ups along the value chain

In Uganda, the age at which broiler birds are slaughtered is often determined by demand. Birds slaughtered at the age of slightly over a month often weigh about 800 g live weight, while those slaughtered at the age of about a month and a half often weigh 2.0 kg or more live weight, depending on the breed used. On the better managed broiler growing units in Uganda today, the feed conversion ratio lies between two and two and a half. In most areas of Uganda, the price of a DOC is 1,500 Ugandan shillings (US\$0.75), while that of a layer chick is 2,450-3,000 shillings (US\$1). The farm price of a medium-sized broiler is about 6,000 shillings (US\$3), often leaving the contract grower with an average margin of 1,000-1,200 shillings per bird (US\$0.60). Looking at the retail prices of broilers, the very small birds are retailed at 4,500-6,000 shillings (US\$2.30-3), medium-sized birds are retailed at 8,000-12,000 shillings per bird (US\$4-6), and the very heavy birds are often retailed at 20,000-25,000 shillings per live bird (US\$10-12). Free range chicken and eggs are

perceived to taste better and therefore, sell at a higher price than broilers, off layers, and eggs. The price for indigenous birds is indicated in **Table 16**.

Table16: Average prices of chickens at markets

Type of market	Hen	Cock
Farm gate (informal)	8,000	10,000
Primary	9,000	12,000
Secondary	10,000	13,000
Urban	12,000-15,000	15,000-20,000

N.B. 1. U.S. dollar equivalent to 2,000 U.Shs.

On average, eggs from indigenous birds cost Ushs 250-500 per egg depending on place, while a tray ranges from Ushs 6,000. The gross profit between farmer gate and primary market and also between primary market to secondary market is 1000/ shillings only while gross profit between secondary market and urban markets is 2,000/- and above.

Overall, farmers do not know the cost of production per bird or egg, as most do not keep records, and the few that keep them do not analyze them to come out with such information. However, farmers in Mukono indicated cost of production for the broiler as Ush 4200= at 6 weeks and calculate the cost of production as 50% of the selling price per egg; while profit per 100 broilers at six weeks was said to be 60,000=.

The profit margin is between 590/- for rural retailers and 1090/- for urban traders per chicken. From the results the profit is approximately 600/- equivalent to 0.33 dollars, and this is small. If the trader or middleman has to earn a dollar a day as profit, then one must retail three chickens per day. When traders take their chickens to towns, they are likely to incur higher costs as well and hence less profit (**Table 17**). The best fit scenario would be for the farmer to take the chicken to the urban consumers so that they get the good price. However due to economies of scale and lack of organization, no such rural farmers can access the high paying institutions. The second scenario is for farmers to take their chickens to the secondary market, but this is not possible because one needs to sit in a market selling chickens every day, and farmers cannot do it. This means that middlemen are a specialized group of traders with established contacts and often employ others as they go to the rural areas to look for chickens. It is a form of employment created by the free-range system. Even if farmers took the chickens direct to big towns, the same farmers would still pay for transaction costs which the middlemen pay for.

Table 17: Transaction costs of middlemen/traders

Transaction	Cost (shs)
Transport	100
Taxes	120
Permits	30
Hire of stalls	30
Others	40
Total	410

Looking at commercial egg production in Uganda, Shaver and Hy-line birds continue to be the most popular, with both DOCs and fertile eggs imported and hatched domestically. The majority of Ugandan producers prefer to keep their birds in production for up to one and a half years. To them, this is usually more profitable and cost-effective than culling after one year. On most layer units in Uganda, the mean annual production per bird stands at 230-240 eggs, and the farm gate price stands at 100-150 shillings per egg (US\$0.05-0.07). According to size, this usually leaves the farmer with a profit margin of about 10-12% per egg. Producers, however, continue to complain that traders and retailers take the lion's share in terms of the profits made from egg sales. For example, for those farmers who grade their eggs weighing 50 g are usually sold to retailers at 3,000 shillings (US\$1.50) per tray of 30 eggs. The retailers then sell the eggs at 4,500 shillings (US\$2.30) per tray, making a profit of 50%. Eggs weighing 55 g are sold by the farmer to the retailer at 4,000 shillings per tray of

30 eggs, and the retailer then resells the eggs to the consumer at 6,000 (US\$3) shillings per tray, making a profit of 50%. Culled layer birds are often sold by Ugandan farmers at the gate at 4,500-6,000 (US\$2.30-3) shillings per bird depending on the size and weight of the bird. Culled layers, having been grown for a much longer period, produce hardier meat, which continues to make them very popular with many Ugandan consumers, with a higher price often being paid for the brown fleshed layers.

2.7 Trade in poultry meat and eggs

Table 18 indicates the value in Uganda shillings of imports and exports of poultry and poultry products for the last five years. It is clear from these figures that the quantity of imports for DOCs has been increasing in the recent past, except in 2006 when it shows a slump, possibly because of the Avian Influenza scare during that period. Since the advent of Avian Influenza scare in 2005, grandparent and parent stock is allowed only from South Africa, Zimbabwe, Kenya, Mauritius, Netherlands, Belgium, and United Kingdom. Currently, no other poultry or poultry products are allowed to be imported into the country.

Table 18: Value of imports and exports of poultry and poultry products

IMPORTS	VALUES IN UGX MILLION				
Item	2005	2006	2007	2008	2009
Day-old chicks	1,125.89	546.50	1,193.14	1,819.12	2,498.80
Day-old turkeys	2.59	7.87	0.00	0.00	3.34
Chilled poultry (whole)	0.00	0.00	1.90	1.56	7.56
Frozen poultry (whole)	1.00	0.00	1.78	4.33	9.85
Chilled poultry (pieces)	0.00	0.00	0.53	1.48	0.38
Frozen turkey (whole)	0.00	0.00	0.00	16.18	31.47
Frozen duck (pieces)	8.41	0.29	1.17	2.34	0.24
EXPORTS	VALUES IN UGX MILLION				
Item	2005	2006	2007	2008	2009
Day-old chicks	72.98	144.56	212.34	440.48	388.75
Adult turkeys	0.00	0.18	0.70	0.00	13.50
Adult chicken	3.01	0.00	0.00	17.54	0.00
Chilled poultry (whole)	0.00	0.00	0.00	0.00	2.05
Frozen duck (pieces)	0.00	7.74	1.39	0.00	4.80

Source: Uganda Revenue Authority

Ironically, there is an indication of imports of poultry meat in these records which could be illegal. This may point to a laxity in enforcement of the regulations although information from the MAAIF is such that in special circumstances, imports could be allowed by permission from the Ministry after presenting a dossier on disease statement from country of origin. Though considered illegal, the increase in imports of chilled and frozen whole chicken indicates the growing demand within the country. This could be a niche market to be explored by Ugandan farmers.

The export for DOCs is also increasing, mainly within the region. However, the figures for export of poultry and poultry products seem far below the actual expected from discussions with exporters in the country which indicates that there is a lot of business that goes on through unofficial channels and is, therefore, not recorded. Most of the exports are going within the region with huge exports going to Southern Sudan and Kenya

2.8 Enabling environment

The conducive environment supports the development and growth of the poultry industry in Uganda. Such environment includes the tax policies, finance institutions, availability of raw materials for the feeds, and supportive agricultural policies among others.

2.8.1 Import and tax policies

Any poultry meat, eggs, or edible offals of poultry and birds attract an import duty of 25% of the value declared at importation in order to discourage imports. On the other hand, machinery for preparing animal feeding stuffs, poultry incubators, brooders, and machinery for the preparation of poultry meat are granted import duty exemption under the 5th Schedule of the East African Community (EAC) Customs Management Act 2004, General Exemptions Regime that require imported inputs by persons engaged in horticulture, agriculture, or floriculture. The above also benefit from import duty remission on spare parts from plant and machinery under Chapters 84 and 85 of the EAC CET imported by registered manufacturers and are not for resale or any other commercial purpose other than for replacement of worn out and obsolete parts of industrial machines subject to such conditions as the Commissioner may impose. Similarly, import of the above listed machinery under Chapter 84 and 85 benefit from VAT deferment for VAT registered taxpayers.

2.8.2 Credit and/or subsidies

The Minister for Finance last year (2009/10) promised to give shs 30b as an agricultural credit facility to be accessed by eligible farmers and agro-processors. However, there have been structural challenges that have barred most small-scale/subsistence farmers from accessing these funds. The effort was to support the medium- to large-scale commercial farmers as well as institute measures to improve capacity for value addition of agro-processors. Despite much enthusiasm from farmers, many financial institutions have said farmers are not fully enjoying the agricultural loans because of stringent requirements. Most available loan products are not really for the peasants who are the majority. The loans are not usually meant for start ups; they are meant to take existing farmers to another level. Most importantly, in order for farmers to access such loans, they need bankable, technically feasible, financially viable, economically desirable, and environmentally sustainable project plans. This is not easy procedure.

Several factors have been raised to explain the failure of financial institutions to fund agriculture. Lack of management skills among the rural borrowers are some of the constraints that render agriculture business risky and costly for the lender and the borrower. Another problem is lack of business. In addition, high dependence on weather and market prices, both of which are hard to predict, make agricultural funding risky and difficult. Other problems include long gestation period of some agricultural and livestock enterprises (especially for tree crops and animal rearing); and when farmers borrow small loans, they attract high interest rates. The others are poor infrastructure, especially roads and telecommunications facilities have not helped matters either. Many people also have poor culture of loan repayment. Access to credit for small farmers and small- and medium-size businesses is exceedingly difficult through normal commercial channels. Lenders incur high administrative costs when providing credit to this segment, and the interest rates that need to be charged to offset this risk make the loans unaffordable to the would-be borrowers.

2.8.3 Availability of crops for poultry feed

Uganda produces all crops that provide raw materials for poultry feeds. These crops include maize, sunflower, cotton, rice, wheat, and soyabeans. The major problem is the low production to satisfy the different users (human food, other livestock like pig and cattle), while a good amount is exported to neighboring countries like Kenya, Rwanda, Sudan, and DRC. The situation is aggravated by the fact that most maize is sold as grain compared to the processed one leaving inadequate maize bran for the livestock feed industry.

2.8.4 High demand for poultry and poultry products

There is very high demand for poultry products, both locally and at regional level. This is an opportunity for Ugandans to improve productivity and market linkages and further develop the industry.

2.8.5 Supportive government policies on agricultural development

The government's main focus is on poverty eradication. Several policies have been put in place that support the poultry industry, including the Plan for the Modernization of Agriculture (PMA) that focuses on transforming subsistence to commercial farming. PMA has seven pillars, one of which is the National Agricultural Advisory Services (NAADS) that has supported the poultry production as indicated in Section 2.9. The NAADS program was established by an Act of Parliament in 2001 as one of the pillars of the Plan for Modernization of Agriculture PMA. The program is implemented at three levels, i.e., NAADS Secretariat, district, and subcounty levels. The primary mandate of NAADS was initially to provide advisory services that would enable Ugandan farmers to increase total factor productivity. NAADS objectives were amended to the following: contribute to increased household incomes; contribute to food security; and enhance commercialization of agricultural production (intensification of production and profitability).

2.8.6 Committed farmers and other stakeholders along the value chain

Farmers and other stakeholders are committed to participate in development of the poultry industry. Farmers in most subcounties have prioritized poultry enterprise under the NAADS program (NAADS 2009) for poverty alleviation. The support from other stakeholders provides the conducive environment for the industry to grow.

2.8.7 Existing support services

The existing support services to the poultry industry include input dealers, namely, vet shops; feed millers; hatcheries; extension services; financial services; researchers; training institutions; and upcoming processors.

2.8.8 Existing poultry farmer groups/associations

The NAADS program and other development agencies have supported establishment of poultry farmer groups. Groups facilitate farmer access to services rather than to individuals. This is supported by Uganda Poultry Farmers Association. This will make it easy for the development organizations to provide service to farmers. More so, these could further be strengthened into producer and marketing associations that will help improve marketing of poultry and poultry products as well as lobbying for favorable policies for further development of the poultry industry.

2.9 Supporting projects for the poultry industry

There have been several poultry projects supported by private and public sectors and development partners. Most of these have focused on poultry outscaling for increased incomes. However, a few have focused on disease control and poultry breed improvement. Following is a brief description of supportive projects for the last five years:

OSRO/UGA/604/USA - Emergency assistance for the implementation of the surveillance and communication components of the National Plan of Action for Preparedness and Response to Avian Influenza (Bird Flu) in Uganda.

This project, funded by the US Government at US\$375,000, commenced in August 2006 and closed in March 2008. It was executed by FAO with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) as the implementing government department. The overall objective of the project

was to strengthen local capacity for emergency preparedness planning against the eventuality of the Highly Pathogenic Avian Influenza (HPAI) being introduced into the country, through trade (legal and illegal) and migration of wild birds. It included the understanding of trade patterns and migratory bird movement into and within Uganda, an assessment of the potential risk for domestic poultry, mounting public awareness of the issues relating to the risk factors for AI spread and strengthening HPAI field surveillance through:

- Development and dissemination of a compensation plan for HPAI control in poultry.
- Development, production, and dissemination of guidelines for the prevention and control of HPAI.
- Improvement of HPAI Contingency Plan and response via the conduct of effective simulation exercises.
- Development of guidelines and legal frameworks to improve biosecurity and biosafety in poultry market chains and communities.
- Identification and operationalization of Rapid Reaction Teams (RRTs) at national and local government levels.
- Establishment and operationalization of an equipped National Command and Control Center.

The project was initially planned to be implemented over a period of six months but eventually took 18 months. The following were the major outputs/outcomes as highlighted by the final project report:

- Sensitization and training activities, together with simulation exercises and surveillance, provided new skills and built capacity at MAAIF, DLGs level, and higher level of awareness by DRRTs, extension agents, leaders, and the public on the dangers of HPAI and how to respond in case of an outbreak. There was an increase in the number of people reporting to MAAIF personnel on suspicious cases and requests for general information on HPAI.
- The Uganda Poultry Association has become stronger and more robust, and put its own HPAI contingency plans in place. The ban on importation of poultry and poultry products from surrounding countries created demand for poultry and poultry products that could not be met internally. Coupled with similar high demand by Southern Sudan, associations of dealers in indigenous poultry have sprung up and installed hatcheries and are supplying DOCs to farmers.
- FAO projects and NGOs operating in Northern Uganda have added poultry production on the curriculum of Farmer Field Schools (FFSs) as a viable income generating activity for former internally displaced persons (IDPs) who are now returning home.

OSRO/UGA/711/USA

The project was prepared by MAAIF and FAO and was supported by USAID with a budget of US\$ 417,850, through FAO. The major objectives of the project were to improve poultry production practices of smallholder farmers, leading to improved livelihoods, and the collaboration for development of prevention strategies against HPAI and other TADs. Specific objectives were:

- Enhanced capacity in surveillance for HPAI.
- Progressive reduction of risk factors favorable to HPAI introduction and transmission.
- Reduced risk of human HPAI pandemic.
- Improved food security for the rural poor who rely on small-scale backyard poultry.
- Increased local, regional, and international trade in safe poultry products.
- Effective veterinary services.

The project was countrywide, implemented from December 2007 to June 2010 by MAAIF, while FAO provided guidance and assisted in technical aspects, and had the following major outputs/outcomes:

- A study was undertaken to assess the biosecurity risk for Uganda covering the full value chain in all poultry sectors and with special emphasis revealed serious biosecurity gaps. This helped inform the development and dissemination of the guidelines for improving biosecurity practices in poultry production in the country and the enabling legal framework for implementation of the guidelines to improve poultry production practices and thus reduce the risk of HPAI introduction and impact in the country. Personal protective equipment and rapid test kits were supplied to regional veterinary offices.
- District Local Government (DLG) workers were trained in HPAI surveillance, biosecurity and outbreak response and assisted in conducting passive and active surveillance, as well as primary investigations of reported poultry deaths and diseases.
- MAAIF was provided with a vehicle that greatly enhanced support supervision and surveillance and backstopping to the DLGs and collection of samples from poultry and wild birds for laboratory analysis. Information materials such as the communication strategy and trainers manuals for improved poultry production in free-range production were also provided.
- The additional training and surveillance skills further improved the capacity of MAAIF and DLGs. Awareness was further improved among DLGs, extension agents, leaders, and the public regarding the dangers of HPAI and how to respond to an outbreak.
- The improved capacity of government agencies to report and respond to outbreaks will benefit the general public, especially stakeholders in the poultry sector. The biosecurity guidelines and legal framework that has been developed will enable control and monitoring of production, marketing, transportation, and slaughter along the entire production value chain, which is expected to further reduce the risk for disease transmission in the sector.

The Support Program to Integrated National Action Plans for Avian and Human Influenza (SPINAP-AHI).

This program was a 36-month regional initiation from the African Union Inter-African Bureau for Animal Resources (Au-IBAR) with funding from the European Union in 47 Asian, Caribbean, and Pacific (ACP) member nations to support Avian and Human Influenza control activities. The program in Uganda, funded to the tune of US\$ 800,000, commenced in July 2008 and expired on December 31, 2009. The program was jointly implemented by MAAIF and Ministry of Health (MOH) with the former as the lead agency, and implemented in all districts of Uganda with major focus on high risk districts. The high risk districts include those in close proximity to sanctuaries of migratory birds (e.g., around protected areas, water bodies, and swamps), markets with poultry, and poultry farms of low biosecurity and backyard premises.

The overall development objective was to contribute to the reduction of the socio-economic impact of avian and human influenza and the potential loss of human lives by preventing and controlling avian influenza in animals, as well as preparing for a possible human influenza pandemic. The purpose of the project was to strengthen the national capacity to prevent and control Avian and Human Influenza.

The Avian and Human Influenza Preparedness and Response Project (AHIP)

The project is partly a grant of US\$2.00 million and partly on credit of SDR 6.20 million (US\$10 million equivalent). The project was approved in June 2008, became effective on December 3, 2009, and is slated to end December 2012. There are four components:

- ***Animal Health (IDA Credit US\$5.66 million and US\$1.0 million Grant).*** The component will support: (a) overall institutional strengthening for animal disease prevention and control; (b) national AHI prevention and control strategies over the short- and medium-term; (c) capacity strengthening of the National Veterinary Service (NVS) to cope with HPAI epidemic and new

emerging infectious diseases; and (d) increased monitoring and surveillance of migratory and resident birds.

- **Human Health (IDA Credit US\$2.06 million and US\$1.0 million Grant).** This component will support: (a) building the health system capacity to detect Avian Influenza (AI) early, respond and contain the infection at source; (2) adapting guidelines and training materials (including infection control guidelines); and (c) training, activating, and strengthening of national and district Rapid Response Teams (RRTs), establishing isolation units, upgrading laboratories and pre-positioning Personal Protective Equipment (PPEs), supplies and medicines.
- **Communication (IDA Credit US\$1.83 million).** The component will, *inter alia* provide funds to: (a) fill strategic information gaps; (b) enhance the communication skills of key policy makers and spokespersons through training; (c) establish communications centers within the coordination/operation centers at central and district levels; (d) mount media campaigns on AHI; (e) train farmers and households with backyard poultry, local government officials, and religious and cultural leaders on the risks of AI; and (f) develop an M&E system. This component will be funded through MOH, with implementation undertaken jointly by MAAIF and MOH.
- **Coordination, M&E (IDA Credit US\$0.45 million).** This component will support implementation costs associated with project planning, coordination, management, as well as overall monitoring and evaluation (M&E) at the national and district levels. The support will be provided to the Office of the Prime Minister (OPM), MAAIF, and MOH for the operational costs of the NPSC, National Task Force (NTF)/AHI, Technical Working Groups (TWGs), PCT, and the RRTs.

The following were major outputs/outcomes:

- Coordination and Planning of HPAI preparedness, prevention, and response strengthened
- Memorandum of Understanding (MoU) signed by the Permanent Secretaries of MAAIF and MOH to facilitate smooth implementation of the project
- First SPINAP East African Regional Coordination meeting hosted by Uganda in August 2008. Participating countries included Burundi, Djibouti, Democratic Republic of Congo, Ethiopia, Eritrea, Kenya, Rwanda, Seychelles, Somalia, Sudan, Tanzania, and Uganda.
- Inception workshop for key stakeholders held in January 2009 in Uganda. The objective of the workshop was to discuss implementation guidelines, procurement and financial procedures, project progress and synergies with other partners.
- The National Task Force (NTF) and Technical Working Groups (TWGs) and coordination meetings were held and facilitated to assess and evaluate how the pandemic was handled, draw lessons and lay strategies to improve on response HPAI.
- Technical support visits were made to districts and hospitals to discuss and sensitize the district leaders, health workers, and education officers and re-orient District Rapid Response Teams (DRRT) on pandemic response.
- Visits to poultry farmers in the districts of Wakiso, Kasese, Rakai Mukono, and Jinja to sensitize on avian and swine influenza prevention and control.
- Office equipment and computers procured to strengthen the capacity of the coordination unit and technical working groups.
- Active surveillance activities for Avian Influenza with strong emphasis in Northern and West Nile Regions due to their proximity to Sudan where the disease had been reported. MAAIF staff undertook laboratory investigations that involved collection of samples from selected high risk districts in the country.
- MAAIF teams collected 1,022 samples from poultry and 80 samples from pigs from 31 high risk districts representing 38% of the country and tested at the National Animal Disease Diagnostics and Epidemiology Centre (NADDEC) using Anigen AIV Antigen Rapid Screening Test. All samples tested negative for Influenza virus Type A.

- Procured 75 (2,250 tests) kits of AIV Antigen avian influenza for HPAI and 75 (2250 tests) kits of NCD to strengthen the capacity for diagnosis and differential diagnosis of avian and swine influenza at the National Animal Diseases Diagnostic and Epidemiology Centre of MAAIF, 90 kits of Avian Influenza Virus Rapid Detection Kits (AIV Rapid Test Kits).
- Staff of MOH undertook laboratory investigation of suspected cases of human influenza Type A H5N1 and pandemic H1N1 through collection and diagnosis of samples. Procurement of laboratory supplies for sample collection by the Central Public Health laboratory (CPHL) and testing at the National Influenza Center (NIC) at the Uganda Virus Research Institute, Entebbe was undertaken.
- Diagnosis for influenza Type A viruses at the National Animal Disease Diagnostics and Epidemiology Centre of MAAIF was strengthened through training of personnel.
- In-country trainings were organized for district veterinary staff in diagnosis of avian influenza.
- Training and orientation of nurses, clinicians, and doctors were undertaken in and around Wakiso district and Kisubi hospital and also in three regional referral hospitals by the staff of Entebbe, Mulago hospital, and MoH headquarters. The training focused on screening for influenza at airport /border entry points, surveillance, case definitions, nursing care, infection control, and case management.
- The SPINAP staff in conjunction with Early Detection Surveillance and Reporting project based at ILRI trained district veterinary staff in the use of participatory disease surveillance (PDS) approaches to search for influenza. Twenty-five District veterinarians were trained for two weeks. The trained participants were supported to undertake PDS in their respective districts.
- The districts were also provided with Avian Influenza and New Castle Disease Kits and consumables to enhance diagnosis of those diseases in the districts.
- The Uganda Wildlife Authority jointly with MAAIF carried out wildlife surveillance for Avian Influenza in Kidepo Valley and Murchison Falls National Parks. They also mapped out high risk areas and migratory wild bird sanctuaries.
- The Epidemiology Unit produced and distributed 3,000 standard reporting formats to the districts. The Epidemiology Unit of MAAIF procured five desk computers and six laptops to strengthen data storage and analysis
- Support supervision to sentinel surveillance sites in two hospitals was done and is an ongoing activity. This is where screening for influenza like illnesses (ILI) and severe acute respiratory syndrome (SARI) are being done. Laboratory testing for influenza A H1N1, avian influenza A H5N1 and other seasonal influenza viruses is also a continuing activity.
- Standard guidelines for human influenza surveillance and field operation manuals were developed in order to harmonize the surveillance of H5N1, H1N1, and any other (new) influenza viruses and handling of port health under IHR (2005) stakeholders trained.
- Over 30,000 travelers were screened under the IHR 2005 at Entebbe Airport, Busia, and Malaba on the Uganda-Kenya boarder. A total of 114 cases were confirmed but no deaths (9 foreign nationals, 4 local contacts to foreign nationals, 2 Uganda international travelers, 4 contacts with contacts of Ugandan international travelers, 23 community members, and 72 students/pupils.
- The project procured an assortment of equipment and chemicals for disinfection.
- Sensitization of 500 poultry farmers on Highly Pathogenic Avian and Human Influenza (HPAI) prevention and control was carried out in Adjumani and Moyo during which 10 village meetings were held.
- The communication team produced and disseminated 10,000 Fact Sheets on Avian Influenza and 2,000 brochures on SPINAP project.
- The project empowered professional associations to participate in AI control activities, e.g., Uganda Veterinary Association (UVA).
- A study on Knowledge, Attitude and Practices (KAP) in relation to Avian Influenza was carried out in the districts of Rakai, Sembabule, Luweero, Wakiso, Soroti, and Kaberamaido. Information obtained was used to review and update the fact sheets and the communication strategy.

- Social mobilization and sensitization on pandemic influenza was carried out in eight districts in North-west and Eastern Uganda. Social mobilization and health education to promote community awareness and behavior change was also conducted in 10 northern districts of the country targeting schools and vulnerable and high risk communities.
- Communication materials were prepared, printed, and disseminated.

Telefood projects

These projects were officially launched by FAO in 2000. To date about 40 such projects have been funded among which are poultry projects in the North, Eastern, and Central parts of the country. These are small-scale development projects proposed by farmers and recommended by MAAIF.

The local birds improvement program at Serere Research Station (SAARI cross bred chicken project in Eastern Uganda)

The National Livestock Resources Research Institute (NALIRRI) generates suitable technologies to increase quality and quantity of milk, meat, and eggs from livestock in Uganda. In order to improve their production potential, NALIRRI has produced Bovans Brown Chickens with better production characteristics while retaining the adaptation and desirable attributes of indigenous chickens. The Bovans Brown /SAARI CROSSBRED chicken is a stabilized crossbred (3/4 Bovans Brown: 1/4 local) developed by NALIRRI after a long period of research and evaluation with farmers. They have the following characteristics: a dual-purpose breed for both meat and egg production; higher meat and egg production; high mating ability and fertility; good brooding /mothering ability; adapted to free range scavenging; resistant to common diseases; highly profitable production; and protective camouflage color. The chickens have been distributed to different farmers in Soroti and Kumi Districts. The offspring have better productivity than the local chicken.

The NAADS program

This program was established by an Act of Parliament in 2001 as one of the pillars of the Plan for Modernization of Agriculture (PMA). The program is implemented at three levels, i.e., NAADS Secretariat, district, and subcounty. The funds are disbursed to the different levels in the following proportions: NAADS Secretariat 13%, districts 12%, and subcounty 75%.

The primary mandate of NAADS was initially to provide advisory services that would enable Ugandan farmers to increase total factor productivity. In the course of time, however, the program's mandate has changed to encompass sector and National development plans.

During FY 2007/2008, the program was revised by Cabinet to contribute to the national vision of Prosperity for All (PFA) and hence NAADS objectives were amended to the following;

- contribute to increased household incomes
- contribute to food security
- enhance commercialization of agricultural production (intensification of production and profitability)

An assessment of implementation of the model farmer approach during FY 2008/09 revealed chickens as the most widely selected livestock enterprise (**Figure 22**). This probably had to do with the limited land required to start up and quick revenues that can be generated from the enterprise. NAADS has trained poultry farmers, set up demonstrations at farm level for both local and exotic poultry (supplied chicks, feeds, and equipment), availed hatcheries to selected farmers in different regions all based on the needs of the farmers in a given area.

Figure 22: Frequency of selection for livestock, apiculture and aquaculture enterprises

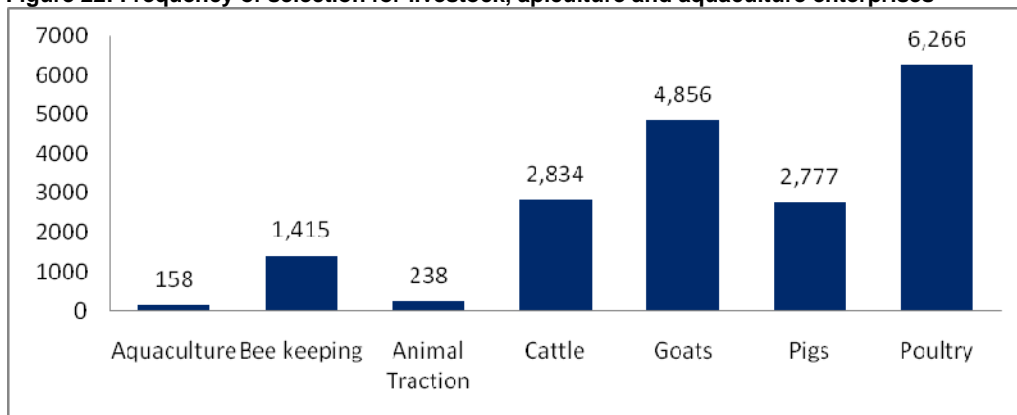
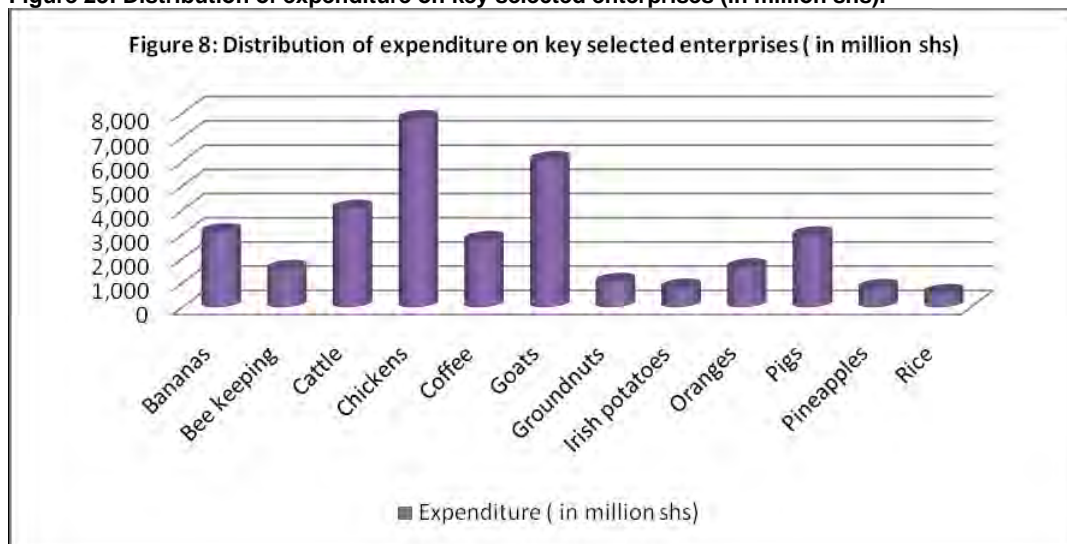


Figure 23 reveals that the largest investment in millions of shs was made with chickens (7,757.582 m).

Figure 23: Distribution of expenditure on key selected enterprises (in million shs).



Crop and Livestock Integration for Sustainable Management of Natural Resources and Building Livestock Resilience in East and Central Africa

This program was implemented by four ASERECA countries (Uganda, Kenya, Tanzania, and Rwanda). The sector on poultry in Uganda is focusing on group strengthening and improving market access, linkages, and value addition. Farmers were trained on establishment of sustainable poultry groups in Ngora, conducted a value chain analysis, and are in the process of establishing group marketing centers for poultry in Ngora District and linking farmers and traders to agrifinance institutions. Poultry farmers will be trained on management practices after conducting a training needs assessment.

3.0 Roles, challenges, recommendations, and opportunities of stakeholders along the poultry value chain

Stakeholder	Roles	Challenges	Recommendations	Opportunities
Farmers/Producers	Production of table birds and eggs	<ul style="list-style-type: none"> Poor market linkages Poor quality feeds/ingredients. No regulating body, business people just start feed mixing without technical advice, only from a fellow business person. Liberalisation without quality control High input prices that do not match farm gate prices for the birds and eggs. Individual marketing. Farmers not organised to market, they accept any price offer without considering production costs. Inadequate farmer knowledge on management practices and production costs per egg or bird on which they can base their pricing. Farmers making own feed but using wrong formula as they want to reduce on expenditures Low production, inconsistency in supply, farmers cannot sustain the market. Most farmers do not have proper training, they learn on the job, from fellow farmers Inadequate DOC for the farmers, few volumes hatched out to satisfy demand. Farmers cannot programme their production and this affects marketing especially for broilers. 	<ul style="list-style-type: none"> Link farmers to better markets/middlemen MAAIF and UNBS should regularly inspect feeds to identify unscrupulous traders Identify least cost formulations using local materials. Explore the nutrition content of raw materials like fish. Could replace e.g. fish a major ingredient of poultry feeds with soya Facilitate farmers to establish sustainable groups basing on savings and credit and group marketing Train farmers to carry out Gross margin/profitability analysis of enterprise/taking farming as a business and training farmers in appropriate management practices Train and sensitise farmers on importance of appropriate feed formulations Financial support to farmers to upscale production Financial support to hatcheries to upscale production 	<ul style="list-style-type: none"> High demand for poultry and poultry products Available local and regional markets Government support to poultry sector/farmers Conducive environment to produce most feed ingredients like maize, soya, sunflower cake, cotton seed cake and fish., NGOs like BRAC supporting poultry vaccinations, AUPWAE focusing on women welfare, ready to support them in training,
Veterinary extension workers	<ul style="list-style-type: none"> Disease control and surveillance Oversee processing Provision of 	<ul style="list-style-type: none"> Inappropriate slaughter places/poor hygiene in slaughter 'rooms' Too many service providers in to be followed up and assess quality of service provision Inadequate funding for monitoring/surveillance and extension service 	<ul style="list-style-type: none"> Vet dept/MAAIF should develop guidelines for poultry slaughter places Identify, assess and register all slaughter places that qualify Vet associations (e.g UVA) should identify and register extension service providers 	<ul style="list-style-type: none"> Growing industry to avail business to vets Supportive Govt policies on poultry Presence of UVA as a regulatory body

	advisory services	<p>delivery</p> <ul style="list-style-type: none"> Poor handling of vaccines at all levels (importers, staff and farmers) Policy implementation overtaken by politics Inadequate extension staff, overwhelmed by work, results to farmers doing own medication and feed mixing without supervision 	<ul style="list-style-type: none"> Govt should increase agriculture budget and to poultry sector in particular Vet dept should ensure cold chain is in place. MAAIF should inspect importers to ensure cold chain is in place before giving import licence for vaccines 	
Hatchery operators	<ul style="list-style-type: none"> Supply of DOC Training to farmers and students (interns from agricultural institutions) Provides employment Hatches local poultry eggs from farmers at minimal cost 	<ul style="list-style-type: none"> Low production cannot satisfy the demand e.g. Congo needs 10,000 chicks /per month (Butenga produces 2000 broiler and 4000 layer chicks/month) Expensive and adulterated feed ingredients (fish and shells with sand), Premixes not to recommended standards, content does not match inclusion rates Competition of feed ingredients like maize and fish with people as food Expensive drugs High taxes on inputs like drinkers and feeders High electricity costs due to high tariffs and load shedding Reduced demand for local chicks in central region due to high costs of production that do not much output due to low genetic potential Lack of labs at UNBS to analyse vitamins/premixes imported; or carry out microbiological tests to test efficiency of disinfectants Disposal of male chicks after hatching layers Inbreeding among local chicken due to lack of selection and poor record keeping Inadequate technicians to repair hatcheries 	<ul style="list-style-type: none"> Government should avail friendly Agricultural financing to upscale production and satisfy the market Automation of hatching and management of parent stock to reduce costs and increase efficiency UNBS should establish laboratories in partnership with private sector to carry out required analyses at an affordable cost Enhance soya production (better through contract farming by poultry farmers) to replace or complement fish as a source of proteins since fish is becoming scarce and expensive Lobby government for tax exemption on all poultry equipment Lobby government to lower electricity tariffs Formulate low cost feeds for local poultry Government should invest in labs and charge farmers minimal fee for analysis Liase with pig farmers who can take the crushed chicks Train farmers importance of record keeping and records to keep 	<ul style="list-style-type: none"> Local and regional market (Rwanda, DRC, Sudan, Tanzania) Increased number and size of farms Increased demand on poultry and poultry products
Incubator Fabricator		Lack of technical personnel in hatchery fabrication	Apprenticeship courses should be conducted	High demand for hatcheries and DOC

Input dealers (Vet shops, feed millers)		<ul style="list-style-type: none"> • Low quality expensive drugs imported, liberalisation policy yet, poor surveillance by UNBS • Adulterated ingredients and drugs on the market yet no capacity to analyse and confirm their composition. • Farmer over expenditure on treatment and feeding without technical advice • Many duplicated drugs on the market (chemical composition) but with different costs • Farmers preference to buy smaller volumes yet some items are never in small quantities (e.g. Vaccines) has resulted in unprofessional repackaging and/or selling reconstituted vaccines in small volumes to small holders • Lack of fully mechanised systems 	<ul style="list-style-type: none"> • UBS and NDA should periodically monitor animal feeds and drugs by analysing the content (more vets should be employed in the NDA to increase surveillance • MAAIF/veterinary departments in districts should register all feed millers/drug shops • There is need to measure moisture content of feed ingredients like maize, fish to avoid moulding, indigestion especially in chicks; and respiratory diseases when fed on very dry feed • Input dealers (vet drug shops, feed millers) need to form stakeholder associations that can focus on self regulation for provision of better services/inputs • Training feed millers on basics of feed mixing/feed formulation • Develop and sell computer soft ware for feed formulation to farmers, feed millers to ease the process 	<ul style="list-style-type: none"> • Regulatory bodies in place • Growing poultry industry but phasing out small holder farmers
Traders/mark eters	Buy chicken from producers/middle men and sell to consumers	<ul style="list-style-type: none"> • Limited access to credit/ Inadequate capital – unfavourable conditions, lack of information • Cheated by customers especially hoteliers • Diseases • High transport for poultry is expensive • Thefts from market stalls or thieves selling stolen chicken to unsuspecting traders • Unwillingness of MFIs to lend traders, poultry trade considered a risky business 	<ul style="list-style-type: none"> • Avail information about finance institutions • Train on business management • Educate traders and farmers on disease control • Supply contracts should be made that are legally binding 	High demand for poultry and poultry products
Finance institutions		<ul style="list-style-type: none"> • Scattered farmers hhs, expensive to follow up/train • Women more involved in poultry keeping but no capacity to get loans, no ongoing enterprise which is a prerequisite 	<ul style="list-style-type: none"> • Organise farmers into groups/strengthen existing groups and train them on loan management and monitoring • Group approach strategy 	<ul style="list-style-type: none"> • Every household has poultry for livelihoods • Virgin business in places like Soroti

Stakeholders have different challenges and opportunities, however, there are some that cut across like and have been summarised in section 4.

3.1 Producers

Producers/farmers face several challenges that limit productivity and income from poultry. One of the major challenges is poor feeds due to adulterated and expensive feed ingredients on the market. Farmers have opted to mix their own feed; however, most end up with poor feeds. They do not use the right ingredients as they try to minimize costs. This coupled with inadequate knowledge on production, management practices, and disease control has resulted in low productivity. Poor productivity is aggravated by inadequate supply of DOCs, unorganized marketing, poor access to markets, and low price for poultry and the products. On the other side of local poultry farmers, there is very little feed supplementation though efforts have been made to control disease. Improving feeding and selection of good breeds would go a long way to improve productivity of local birds.

3.2 Veterinary extension workers

These are public or private sector veterinarians who provide advisory services to the farmers. Their major challenge is poor logistical support like lack of field transport, poor cold chain due to inadequate funding by the relevant organizations to enable them to carry out their duties efficiently and effectively. The field staff are few and overwhelmed by work. This has resulted in farmers doing own medication and feed mixing without proper supervision.

3.3 Input suppliers

These include feed millers, produce buyers, vet supply shops, which provide all the necessary input for the poultry sector. The quality of inputs is compromised due to poor ingredients for the feeds, inadequate supervision of vet supply shops/pharmaceuticals by the National Drug Authority (a regulatory body for medicines and vaccines). This has resulted in poor quality ingredients on the market that have greatly affected the development of the industry.

3.4 Traders

Traders are at different levels, including the middle and the final marketers. Quite often, the middlemen offer very little price to farmers as they claim they are heavily taxed and pay high transport costs. Some traders lose their capital due to thefts of the live birds from the stalls in the markets, or due to customers like hoteliers who cheat them after being supplied with poultry or the eggs. Inadequate capital has also affected the trade as most finance institutions do not like to finance risky businesses like poultry.

3.5 Hatchery operators

Most hatchery operators keep parent stock where they get eggs for hatching. A few own the hatcheries but either buy eggs from parent stock farmers or other farmers bring their eggs for hatching at a cost. One of the major challenges is the poor feeds that affect productivity. In addition, most hatcheries are not completely mechanized making them inefficient. Like other agricultural enterprises, they do not get much support from institutions. Most hatcheries do not operate to full capacity due to limited funding. The low productivity also affects access to bigger markets in the region as such need large volumes of DOCs. The low demand for chicks due to high production costs for commercial broilers and layers has also greatly affected output of the hatcheries.

3.6 Finance institutions

Finance institutions are major players in any business; however, their challenge is the risky agricultural business that is not insured. There is also the problem of poor loan repayment by the borrowers. Most agribusinesses find it difficult to borrow from these finance institutions due to the

high interest rates. On the other hand, finance organizations are business entities that have to be run on a profit. They, therefore, find agri-financing unprofitable and have no other alternative but to give agribusiness people commercial loans. Such loans are not friendly, and this could be the reason for defaulting in payment.

3.7 Training and research institutions

These include tertiary and research institutions (Bukalasa Garicultural College, Faculty of Veterinary Medicine, Makerere University, the National Agricultural Research Organization (NARO), and NALIRRI. One of the major challenges is inadequate funding to these institutions to enable them to have sustainable outreach programs to the communities to disseminate technologies developed.

4.0 Analysis of the Challenges in the Poultry Subsector

The following are the key constraints that have been identified in the poultry industry in Uganda.

4.1 Breeding/inadequate availability of DOCs

As stated earlier, the poultry industry in Uganda is dominated by the indigenous breeds. While these breeds are cheaper to manage (require less feed, resistant to some diseases), their productivity is low in terms of growth rate, carcass weight, and egg production. So far, research efforts to produce local breeds with high productivity traits have not been successful; hence, commercial poultry production has tended to rely on exotic breeds. The supply of these exotic breeds, in form of DOCs, has for a long time not satisfied the demand because of dependence on imports. Attempts have been made to establish hatcheries; however, the hatcheries are constrained by low installed capacity, underutilization of the installed capacity, lack of management skills, and lack of capital especially to purchase and manage parent stock. The result is that the supply of DOCs to commercial farmers is inadequate, irregular, and expensive.

4.2 Feeds and feeding

The key constraints regarding feeding of poultry are feed availability, feed quality, and feed costs. Under the extensive system of management, farmers always assume that the birds will receive adequate feed supply by scavenging around the homestead. This is not necessarily true, and it affects the productivity potential of these birds. As for commercial poultry production, the availability of compounded feeds is constrained by competing use of the feed ingredients (cereal grains, fish as human food, brewing industry, feed for other animals) and seasonal variation. The factors above lead to high cost of quality poultry feeds, thus constraining commercial production. The financial institutions do not generally offer credit facilities to the poultry industry and animal feed manufacturers. While it is normal practice, in developed countries, for feed manufacturers to give feeds on credit to poultry farmers and to extend extension services, this practice is only available to a few farms. This has resulted in failure and limited expansion of poultry farms causing static demand on hatchery and feed mill products. In addition, while the installed physical capacity of the feed mills for the moment is enough for the current number of commercial poultry, growth in demand would not be easily met as most feed owners are constrained by lack of capital and qualified personnel to run large out-put factories.

There is no proper registration of feed millers and enforcement on quality. Anyone can make feeds without having prior knowledge or training about feed mixing. More to this, there is no supervision by the relevant authorities like MAAIF and Uganda Bureau of Standards.

Most mixers are fabricated in Uganda and are not efficient and easily break down.

4.3 Poultry Diseases

The most common poultry diseases are Newcastle, Gumboro, Avian leucosis, Salmonellosis, Coccidiosis, and internal and external parasites. It should be noted that with the introduction of privatization of farm input supply, the supply of poultry drugs, vita minerals, and most vaccines has improved. However, at times, the quality of these inputs is suspicious as the storage facilities are lacking as the cold chain stops at the district in most cases and none at subcounty and farm level. The cost of these inputs is often high. In most cases, the inputs are packaged in volumes that are not suitable for use by the small-scale farmers. Another constraint to disease control is that the diagnostic facilities are in most cases lacking and expensive where they are available. In addition there are very few extension workers trained and skilled in the diagnosis and treatment of poultry diseases.

4.4 Inadequate knowledge and skills

The poultry industry is in its infancy. There are few trained, knowledgeable, and skilled extension workers in the poultry sector. Consequently the delivery of advisory services to farmers for commercial production is still weak. A survey of poultry farmers has indicated inadequate knowledge and skills in poultry production and management resulting in poor management, high mortality rates, low productivity, and low profits.

4.5 Inadequate capital

Like the other subsectors in agriculture, the poultry industry is constrained by lack of capital investment. Conventional financial institutions are reluctant to give loans to farmers. There is, therefore, lack of capital at all levels: the commercial growers, breeders, feeds manufacturers, and few processors.

4.6 Marketing

There are several challenges associated with marketing of poultry in Uganda.

Seasonal availability of birds. The seasonal effects of price fluctuations depend on festivity seasons and crop activities. Thus when it is a season when beans are likely to be destroyed by chickens, most farmers will sell most of the chickens. Also when it is a season, e.g., Christmas, the prices will be high due to increased demand.

Transportation. Since there is no specialized packing of live chickens, the birds are bundled together either on strings or baskets, and often they die during transportation. This will make the middlemen lose income.

Retailer output. When the retailer is selling roasted pieces of chicken, all pieces cost the same irrespective of the original size of the hen or cock. The output of the retailer (roasted piece) will determine the type and quantity of chickens such retailers will buy.

Outbreaks of diseases. This affects both farmers and middlemen. On getting a signal of disease in an area, farmers will panic and sell their chickens cheaply. Similarly, the middlemen who buy cheaply also often lose a number of them to disease.

Lack of information on prices and markets. The farmers depend on information given to them by traders. Most farmers and traders alike base the prices on the ruling market rates from market places within their vicinity and middlemen and/or traders. Farmers are left in an exploitative situation since they do not compare this information with other markets. There was no systematic way of getting the information. Farmers were not aware of any source of market information that would include prices and their fluctuations, as well as market opportunities available. The farmers noted with

concern that they lack market information. Both the farmers and traders lack standard measures that can be used as a base to set prices. Without the benchmark, the farmers could be cheated by the unscrupulous traders. There is need to timely avail farmers with market information and also train them on Gross Margin Analysis to help them get a benchmark for setting farm gate prices.

Lack of streamlined marketing organization. Although farmers get information that chickens and eggs may bring high prices in towns or if sold to institutions, they lack the capacity and economies of scale to gather enough stock for such a transaction.

4.7 Housing

Housing is an important aspect of poultry management. Poultry houses minimize disease outbreaks and protect poultry against predators among others. Though most commercial poultry farmers build poultry houses, they are not to desired standards due to limited funds and fear for the thieves, while others use garages to their houses that have poor ventilation. Local poultry farmers have houses especially in Central and Western regions. This is still a big challenge in East and North where poultry is left outside or stay in trees or with people, predisposing them to diseases of public health interest like AI. Most farmers lose the chicks to predators and diseases thus finding it difficult to expand their flocks.

5.0 Opportunities of the Poultry Industry

Poultry production has special advantages over other agricultural enterprises that give it a comparative advantage:

- Requires less land than crop agriculture and other livestock enterprises. This is particularly important for peri-urban and urban farmers.
- Requires relatively smaller capital investment: suitable for disadvantaged groups such as women, youth, and the disabled.
- Is less labor demanding.
- Has higher feed conversion rates. It takes 2 kg of feed to produce 1 kg of poultry meat compared to 7 kg of feed to produce a kg of beef.
- Has short generation intervals and, therefore, quicker returns on investment. Broilers are ready for market within 6 to 8 weeks. Layers start producing eggs at 19 to 23 weeks of age.
- Products are accepted in many cultures and religions.
- Waste can be recycled as organic fertilizers for sustainable crop production, or as a source of non-protein nitrogen feeds for ruminants (cattle, goats, and sheep).
- Converts cheap agro by-products such as maize bran into high value meat and eggs.
- Stimulates growth of other related industries such as feed milling, baking industry, and building industry, thus contributing to creation of employment.

Uganda has competitiveness in the following aspects:

- Low labor costs, due to the favorable environmental conditions, the costs of feeds are low compared to the regional markets.
- Steady supply of water makes Uganda a competitive investment destination in the Great Lakes Region.
- Abundant land for production and processing; the climate and soils are good for poultry feed production.
- Improved infrastructure in the form of upgraded road network all over the country facilitates the timely delivery of chicken to processing plants, and finished products to the domestic and regional markets.
- Up-to-date air transport that promotes and facilitates exportation of poultry products within the region.
- Good supply of portable water for cleaning and water for waste disposal.

The poultry industry, despite the challenges, has several opportunities:

- High demand for poultry and poultry products, including local and regional markets (Rwanda, DRC, Sudan, Tanzania).
- Available local and regional markets, government support to poultry sector/farmers, and supportive government policies on poultry .
- Conducive environment to produce most feed ingredients like maize, soya, sunflower cake, cotton seed cake and fish.
- NGOs like BRAC microfinance supporting poultry vaccinations and AUPWAE focusing on women welfare, ready to support them in training.
- Presence of regulatory bodies like the Uganda Veterinary Association (UVA) for the veterinarians and the Uganda Bureau of Standards for the quality assurance of products and inputs like feeds and feed ingredients, as well as the National Drug Authority for medicinal inputs.
- Growing poultry industry, which has resulted in increased number and sizes of farms. Presence of poultry in every household as a source of food and for livelihoods. Virgin business in some places like Soroti and Lira that needs to be explored.
- Great opportunity to develop local poultry due to the preference of products from local poultry because of the taste, leanness, and their availability for special dishes, adaptability to unfavorable environmental conditions.

6.0 Conclusion, Proposed Interventions, and Investments

6.1 Conclusion

Considering the foregoing constraints and prevailing opportunities, the poultry industry has great potential in Uganda. There is high demand from local and regional markets, and competitive and comparative advantage over other livestock, as outlined in Section 5. Poultry production has also been identified as one of the priority enterprises to be funded under the Agricultural Sector Development Strategy and Investment Plan (DSIP 2010/11-2015/16). In view of this, the following areas of investment are proposed:

6.2 Proposed interventions and investments

6.2.1 Enhancing market linkages

There is a relationship between poverty and distance from markets. Access to profitable markets is a key factor that sustains production and determines the success of any business. There is need, therefore, to identify secondary urban or external buyers and link them to farmers or develop partnerships with them (private sector). The stakeholders also need to be availed with market information to enable them to get better prices and, therefore, profits. There is still great potential for Uganda poultry and poultry products both nationally and internationally. There is need, therefore to carry out a market research to identify niche markets and develop products accordingly.

Marketing of poultry and poultry products should be streamlined and the relevant infrastructure developed to ensure hygienic and profitable handling of products.

Advertising is a major part of marketing. There is need for producers and traders to advertise the importance of poultry and poultry products and the different marketing centers.

6.2.2 Regulation availability of feed ingredients

Government should regulate maize exports and invest in infrastructure to handle produce, particularly cereal storage. This will provide buffers in order to stabilize supply and prices.

Processing maize into flour should be promoted so as to add value to maize and retain the bran for poultry feeding.

6.2.3 Promotion of support services

Investing in feed manufacture for export should be promoted for private investors by providing incentives, e.g., affordable electricity and tax holidays. This should also be provided to hatcheries and input dealers. Some items are tax free, but there are some that are still taxed and greatly affect the poultry sector. Support services to be improved also include investing in input supply.

6.2.4 Improving feeds and feeding for the local birds

The population of local poultry is much more than the exotic commercial birds and so is the demand, yet most interventions like feed manufacturing and training focus on exotic birds in line with PMA, moving from substance to commercial level. There is need to formulate feed for local birds, carry out a profitability analysis (with /without supplementation), and finally make a formulation that can help farmers keep local birds on a commercial basis, with research on available feed resources. The feed formulation model developed by PSPK could be adopted by Uganda stakeholders. It is a good tool that can greatly improve feed quality. Local poultry farmers can make pocket friendly feed using existing raw materials. However, there is need also to avail the farmers and technical persons with the nutrient contents of the raw materials as well as the nutrient requirement of the birds.

6.2.5 Establishing the feeds regulatory mechanism

There is need to establish an animal feeds regulatory mechanism as a matter of urgency to control the quality of feeds on the market. The government should discuss and pass the proposed feeds bill which has been tabled in Parliament since prepared by MAAIF about six years ago.

6.2.6 Strengthening stakeholder groups and associations

There are several existing farmer groups and stakeholder associations; however, most are weak and not performing as expected. There is need to strengthen existing ones and establish more when necessary focusing on different stakeholders. Strengthening farmer groups into production and marketing associations would result into increased production and better access to markets putting into consideration economies of scale. This will also help in stakeholder access to services (microfinance, extension) and inputs at reduced costs. Once established, the stakeholder groups/associations can put in place self-regulatory mechanisms focusing on their constraints/challenges.

6.2.7 Improving health services and disease control

Poultry diseases are one of the major challenges faced by the poultry industry. There is need to improve disease prevention and control through training, establishing cold chains at all levels, and organizing groups/communities to periodically vaccinate the birds especially the local poultry (most commercial farmers follow recommended vaccination programs). This would be coupled by enhancing use of the thermostable NCD vaccine among local poultry farmers.

The government/MAAIF should increase investment into research in the poultry enterprise especially regarding exploiting the available non-competitive feed resources. Feeds for the indigenous stock should also be developed.

There is need also to revitalize and promote research into characterization and selection of the indigenous stock in order to develop broiler and layer lines that would maximize productivity.

The government and/or commercial farmers could partner with private sector and invest in producing appropriate vaccines for poultry diseases. New Castle Disease (NCD) should be a matter of priority. In addition, there is need to invest in the cold chain for safe keeping of vaccines particularly in the rural areas. There is also great need to train stakeholders on biosafety measures in poultry production and marketing and disseminate standard operating procedures/guidelines at the different levels.

The farmers also need to be trained in simple techniques of brooding and rearing chicks to avoid heavy losses due to disease and predators.

6.2.8 Improving availability of DOCs

Support to hatcheries should aim to increase capacity utilization of the local hatcheries by training, technical backstopping, and strategic interventions by supplying them with seed stock for both exotic and local poultry. There is need also to facilitate access to agricultural loans, such as those through the Microfinance Support Centre that are under the Poverty Alleviation Fund.

Farmers with local poultry should be trained on synchronized hatching to help them get more chicks at the same time. This would also help ease vaccinations, and farmers would market many birds at the same time and get bulk income.

6.2.9 Farmer/stakeholder training

Special extension packages directly focused to the rural sector and other stakeholders should be put in place to promote an organized Rural Poultry Development Scheme. There should be continuous farmer training on appropriate management practices to increase productivity, gross margin analysis, farming as business, and establishing sustainable stakeholder association/groups. A training needs assessment should be conducted for the different stakeholders to identify other areas of focus.

6.2.10 Increased funding to the poultry sector

There is need to develop and extend financing products that are appropriate to poultry husbandry to farmers, processors, feed millers, and other input dealers. Currently, most finance institutions give commercial loans which have high interest rates and not friendly for agriculture investments.

Previously, poultry has not been considered a priority for funding in the livestock subsector compared to dairy and beef. However, in the Agricultural Development Strategy and Investment Plan (MAAIF DSIP, 2010/11-15/16), government has identified it among the priority areas for funding. It is hoped that government will boost development in the poultry sector and increase efficiency and effectiveness in transforming agriculture from subsistence to commercial production and industrial level.

6.2.11 Establishment of a database/information system

There is need to improve data collection and recording, and establish a poultry database and information network at all levels and involve the different stakeholders. An information needs assessment should be conducted to identify parameters that will facilitate establishment of a database and information system. Formats will then be developed to collect data and stakeholders trained on the importance of records and formats to be used.

6.2.12 Development of native/indigenous breeds

There are several local breeds with different characteristics such as egg quality strength, broodiness, size, high hatchability, taste, resistance to disease, (Horst 1988); however, there is very little information on the genetic make with respect to performance. There is need for MAAIF and

development partners with similar interest in poultry development to work with researchers and develop lines for production of local eggs and meat.

This could be supplemented by a breeding strategy where genetically improved males (layer or broiler lines) could be released by breeding farms to smallholder farmers for improving local poultry egg productivity, growth performance, and feed conversion efficiency for meat production. Interested farmers could be identified to hatch out the eggs within the villages at a manageable cost by small-scale farmers.

The two strategies (upgrading and line breeding) could bring out a breed genetically close to the exotic breeds, though research is needed to evaluate the comparative efficiency of the two methods.

While this could be done, there will be need to properly identify, document, and evaluate indigenous breeds and emphasis put on conservation and development of native poultry (genetic bank).

6.2.13 Strengthen networking

There is also need for AUPWAE to identify more interested organizations at national and international level (in addition to Winrock International and USAID) with the similar interests to improve the poultry sector and develop strategies and plan for collaboration/networking.

References

- Byarugaba, D.K. et al. Management and Marketing of the Rural Scavaging Poultry in Uganda, accessed from the internet on 17/9/2010
- FAO. 2008. Poultry Country Review Report for Uganda.
- FAO. 2005. Uganda Livestock Sector Report.
- FAOSTAT data. 2005.
- FAO/MAAIF. 2008. Emergency Assistance for the Implementation of the Surveillance and Communication Components of the National Plan of Action for Preparedness and Response to Avian Influenza (Bird Flu) in Uganda. OSRO/UGA/604/USA.
- FAO/MAAIF. 2010. Support to the implementation of the National Plan of Action for Preparedness and Response to Highly Pathogenic Avian Influenza in Uganda. OSRO/UGA/711/USA.
- Horst P. 1988. Native fowl as reservoir for genomes and major genes with direct and indirect productive adaptability, 99-104. Proceedings, 18th Poultry Congress Nagoya.
- MAAIF/UBOS. 2008. Uganda Livestock census.
- MAAIF. 2008. Planning statistic.
- MFPEd. 2009. National Development Plan 2010- 2014/15.
- NAADS. 2009. Annual report 2008/09.
- Current human population in Uganda
http://www.indexmundi.com/uganda/population_growth_rate.html
- UNHS. 2006. Uganda National Housing Census.
- World Poultry Newsletter. September 2006.
<http://www.WorldPoultryNews/IndustrialGrowthinUganda-555.html>

Annex 1: Terms of Reference (TOR) for Value Chain Analyses of Poultry Industries in Ethiopia, Tanzania and Uganda

Winrock International (WI) has been commissioned to conduct value chain analyses of the poultry industries in Ethiopia, Tanzania and Uganda. The purpose of the studies is to complement the recently completed poultry value chain study in Kenya and provide a snap shot of the opportunities in the poultry sub-sector in East Africa. The project manager, Dr. Bonface Kaberia, met with the international consultant, Gregory Sullivan, to discuss and draft a TOR for each country national to undertake the work. The objective is to have a uniform approach that is compatible in all the countries. The key to each country study is for the national consultant to address the following components.

Market Outlook for Poultry to 2020 (1 day)

- Collect recent publications on demand of poultry and eggs in each country
- Per capita consumption of poultry and eggs in 2010 and use to project demand in 2020 based on growth in general population and urbanization
- Any other pertinent data on demand drivers in each country (income, relative prices of substitute meats and changing life styles)

Supply Outlook (2 days)

- Key poultry production regions in each country based on density of poultry populations (include maps)
- Cereal and oilseed production in key regions can be overlaid with bird density to identify key production areas for interventions and investments
- FAOSTAT historical data could be collected on production and consumption.

Trade in Poultry, Eggs and Meat (1 day)

- Statistics on imports and exports of live birds, DOC, eggs and meat to include domestic, regional and international trade from 2002 to 2009
- Key domestic live bird markets and how they link production of poultry by rural households to key consumer markets (overlay on map with production areas) (secondary and terminal markets)
- Maps of the country showing the density of poultry, grain supplies, and key markets

Enabling Environment (2 days)

Understand each government's current policies which contribute or hinder the competitiveness of the industry in each country. Person will need to interview a few key public and private sector stakeholders.

- Import policy on poultry meat and taxes on poultry equipment and other inputs
- Credits or subsidies to feed millers, hatcheries, producers, and marketing agents
- Government projects that support the industry, e.g. health, production, etc.

Value Chain Mapping (6 days including field interviews)



Describe key channels for poultry and eggs from input delivery, farm production, distribution, processing, and consumption

- Identify key actors at each stage, e.g. numbers of participants, volume of sales

- Identify and rank constraints faced by key actors which contribute or hinder the competitiveness of the industry in each country
- Identify and rank key actors' opportunities for contributing to competitiveness of the industry

Price Mark-ups along the Value Chain (2 days – visits to markets and interview traders in both major urban markets and major rural markets)

Price of poultry and eggs at each stage of the value chain for live poultry (1.2 kg live bird) and eggs (plate of 30 eggs or one egg)

- Farm gate price (cost of production plus gross profit margin)/bird or egg
- First market (village market) (Collectors cost plus profit margin)/bird or egg
- Secondary market (rural) (Collectors cost plus profit margin)/bird or egg
- Wholesale Terminal market (urban – Addis Ababa, Kampala, Dar es Salaam)/bird or egg
- Retail price cost (cost of processing plus profit margin)/kg of meat or egg
- Hotel-Restaurant-Institutional (cost of processing plus profit margin/kg of meat or egg)

Supporting Projects for the Poultry Industry (2 days – interviews with key government officials and representatives of donor agencies)

- Public sector projects (name, costs of project and time frame with a brief description)
- Private sector projects (name, cost of project and time frame with a brief description) (Commercial producers)
- International donor projects (name, cost of project and time frame with a brief description)

Interventions and Investments (3 days)

- USAID is generally interested in knowing what the possible interventions that would positively impact the development of the poultry industry in each country
- Interventions that would positively impact on smallholder involvement in contributing towards the competitiveness of the industry in each country

Total number of days for national consultant = 19 days

Annex 2: Data Collection Tools

I. Checklist for Producers

Objective: To identify constraints, opportunities and potential for the poultry industry in Uganda and determine price Mark-ups along the Value Chain.

A. Overview of poultry sector in people's livelihoods

1. Types of livestock kept
2. Types of poultry kept
3. Ranking of poultry in terms of food security and income to other livestock kept
4. Numbers on average of poultry kept – small scale, medium, large scale
5. Estimation of numbers of farmers involved in poultry keeping per category
6. Who is actively involved in keeping poultry – gender issues and WHY
7. Types of poultry husbandry practiced (How poultry is raised) and WHY
8. Types of feed given to poultry and their sources
9. What is your view about the quality of poultry feed – (probe whether bad or good)
10. Any training of poultry in terms of food security and income to other livestock

B. Poultry Marketing

1. Draw pathways with participants to indicate:
Where the poultry and poultry products are sold/disposed of (Who do poultry farmers sell to? (Markets, live chicken vendors, shop-keeper, hotels, consumer, etc.). Consider local and regional markets. Rank the markets
2. How do you sell your poultry? (Live or dressed). What is cost of processing?
3. What is the cost of production of a bird/egg?
4. What is the retail and whole sale cost per bird (broiler, off layer, local female, local cock)
5. What is the retail and whole sale cost per egg/tray (local/exotic)
6. What is the gross profit margin per bird/egg?
7. How can we improve efficiency in production?

C. Risks associated with poultry production

1. Generate a list of problems associated with poultry keeping along the chain (probe for health related risks as well). *This is to detect biosafety/biosecurity issues.*
2. Rank problems (major problems determined by participants)
3. Generate a list of opportunities associated with poultry keeping
4. Rank opportunities (major opportunities determined by participants)
5. Identify strategies to address the identified constraints in 1 above in view of 2 above.

D. Stakeholders

- List of different stakeholders in poultry industry/and their roles (Probe for service providers, financing institutions, governmental and non-governmental institutions, health services, feed producers etc.)
- How do farmers perceive the role of other stakeholders in the poultry industry (positive or negative)? *-this will assist in designing intervention, -get ideas on institutional aspects*
- Mapping-positive and negative impacts on poultry production: use different colours

II. Checklist for Marketers/traders

Objective: To identify constraints, opportunities and potential for the poultry industry in Uganda and determine price Mark-ups along the Value Chain.

A. Overview of poultry sector in people's livelihoods

1. Types/volumes of poultry marketed (Local, layers, broilers, offlayers, eggs)

2. Sources of poultry/eggs marketed.
3. How are products transported from the source to point of sale
4. Purchase price of poultry (types)/eggs
5. Price of poultry (type)s/eggs
6. Ranking of poultry in terms of overall livelihood for the marketers
7. Who are actively involved in marketing of poultry – gender aspects and WHY
8. Numbers/types on average of poultry marketed per day

B. Risks associated with marketing live poultry

1. Generate a list of problems associated with poultry in the markets (probe for health related risks)
2. Rank problems (major problems determined by participants)
3. Generate a list of mitigation strategies related to (1) (use top 5 problems)

C. Stakeholders

1. List of different stakeholders (and their role) in the marketing chain of poultry
2. How do marketers perceive the role of other stakeholders in the poultry industry
3. (positive or negative)? *-this will assist in designing interventions -get ideas on institutional aspects*
4. Mapping-positive and negative impacts on marketing of live poultry: use different colors

D. Marketing

Draw pathways with participants to indicate:

1. Who do marketers of live poultry /eggs sell to? (Markets, live chicken vendors, shop-keeper, hotels, consumer, (local/regional, international markets) etc.)
2. How do you sell the poultry (live processed)? What is cost of processing?
3. What are the challenges you encounter in marketing live chicken
4. How do you overcome some of these challenges

III. Checklist for Processors

Objective: To identify constraints, opportunities and potential for the poultry industry in Uganda and determine price Mark-ups along the Value Chain.

A. Overview of poultry sector in people's livelihoods

1. Sources of poultry processed
2. Types of poultry processed. Which type is the more common?
3. Numbers on average of poultry processed per day
4. Price of processed poultry visa viz unprocessed
5. Ranking of poultry processing as an activity in terms of overall livelihood for the processors
6. Who are actively involved in processing of poultry – gender aspects and WHY

B. Risks associated with processing poultry

1. Generate a list of problems associated with processing of poultry (probe for health related risks)
2. Rank problems (major problems determined by participants)
3. Generate a list of mitigation strategies related to (1) (use top 5 problems)

C. Stakeholders

1. List of different stakeholders (and role) in the processing chain of poultry
2. How do poultry processors perceive the role of other stakeholders in the poultry industry (positive or negative)? *-this will assist in designing interventions, -get ideas on institutional aspects*

3. Mapping-positive and negative impacts on processing of live poultry: use different colors

D. Marketing

Draw pathways with participants to indicate:

1. Where the processed poultry are sold/disposed of
2. Who do processors of poultry sell to? (Markets, vendors, shop-keeper, hotels, consumer, etc.)
3. What are the challenges you encounter in marketing processed chicken
4. How do you overcome some of these challenges

IV. Checklist for Government/Private Sector/Funding Institutions

Objective: To Identify Constraints, Opportunities and potential for the poultry industry in Uganda.

A. Overview of poultry sector in people's livelihoods

1. What are the government policies on promotion of the poultry sector? (health, production, import, export) - **MAAIF, URA**
2. Who are the key actors in the poultry value chain? (**District**)
3. What are the on-going (last 5 years) poultry projects being supported by government/private sector? (Name, cost, timeframe, brief description) – **MAAIF, NGOs, DPs**
4. What are the key constraints faced in the industry that hinder competitiveness?
5. What are prevailing opportunities to promote the sector?
6. What strategies would address the constraints?

V. Input dealers

VI. Checklist for Consumers

Objective: To identify constraints, opportunities and potential for the poultry industry in Uganda and determine price Mark-ups along the Value Chain.

A. Overview of poultry sector in people's livelihoods

1. Sources of poultry products consumed e.g. Markets, butcheries, supermarkets?
2. Types of poultry products consumed i.e. type of birds/eggs. Which type is the more commonly consumed?
3. Where the poultry products are commonly consumed i.e. in the home, away from home (markets, restaurants, street vendors)
4. Form of consumption of poultry (e.g. boiled, fried, roasted/barbequed)
5. Any taboos about eating chicken by family members/community

B. Risks associated with preparing poultry for consumption

1. Generate a list of problems associated with consumption poultry
2. Rank problems (major problems determined by participants)
3. Generate a list of mitigation strategies related to (1) (use top 5 problems)

Annex 3: List of Respondents

District	Name	Gender	Organization	Designation/activity	Contact
Kampala	Mukangula Mansoor	m	Nakasero traders Association	Farmer/trader	0712426622
	Asiimwe Deo	m	“	Trader	0712333034
	Asiimwe Steven		“	Trader	0752533366
	Bukenya Vincent	m	“	Trader	
	Jackson Odoi	m	“	Trader	
	Namuddu Rehema	f	“	Trader	0755128929
	Waswa Peter	m	“	Trader/farmer	0772918697
	Nduhuura Peterson	m	“	Trader/farmer	0712994472
	Sekatawa Josephine	f	Kyamula Salaama poultry group	Local & broilers	0774651150
	Nabukenya Caroline	f	Kyamula Salaama	Local, broilers, & layers	0754679833
	Nabankema Florence	f	Kyamula Salaama	Local, broilers, & layers	0704155291
	Musisi Salongo	m	Kyamula Salaama	Broilers & layers	0772493836
	Nattema Sarah	f	Kyamula Salaama	Broilers & local	0775281272
	Nassolo Philomera	f	Kyamula Salaama	Broilers & pigs	0772467477
	Magembe Teo	f	Kyamula Salaama	Broilers	
	Lwesibawa P	f	Kyamula Salaama	Broilers	0753807445
	Namuganyi Lydia	f	Kyamula Salaama	Local	0772447725
	Matovu Mary Goretti	f	Kyamula Salaama	Layers & local	0782886598
	Nakato Winfred	f	Kyamula Salaama	Local	0774169443
	Kafeero Steven	m	Kyamula Salaama	Local	0783078487
	Namuli Evelyn	f	Kyamula Salaama	Local	0772846719
	Sekatawa T.J.	m	Kyamula Salaama	Broiler	0712834061
	Birabwa Harriet	f	Kyamula Salaama	Local	0756909732
	Dr. Kibombo	m	Kamapala City Council	Veterinary Officer	
	Aga Sekalala	m	Ugachick Poultry Breeders	Executive Director	Box 12337, Kampala
	Ronald Nyenje Makumbi	m	Uganda Revenue Authority	Manager Research statistics & business intelligence	Box 7262, Kampala
	Denis Byarugaba	m	Faculty Vet Medicine/FAO	Lecturer	Box 7062
Entebbe	Dr. Wesonga W.	m	MAAIF headquarters	Asst. Commissioner Vet inspection and registration	0712373289
	Dr. Juliet Sentumbwe	f	MAAIF headquarters	Asst. Commissioner Animal Production	0772584598
Mukono	Mwadha Faridah	f	Victory Women's group	Layers	
	Sewankambo P	f	Victory Women's group		0773428400
	Goobi Juliet	f	Victory Women's Group		0753517980
	Nakibuuka Lovisa	f	Victory Women's Group		
	Namakula Agatha	f	Victory Women's Group	Layers	

	Namuleme Kamida	f	Victory Women's Group	Layers	
	Nakanwagi Lazia	f	Victory Women's Group	Layers	
	Mukose Semei	m	Victory Women's Group	Layers	0782040326
	Maliyamu M	f	Victory Women's Group	Local chicken	0779111168
	Kijjambu David	m	Victory Women's Group	Layers	0772496770
	Kisoma Enoch	m	Victory Women's Group	Layers	0775266488
	Ssemwanga Essau	m	Victory Women's Group	Layers	0774333386
	Namaganda R.M.	f	Victory Women's Group	Layers	0772496770
	Jane Mbabazi	f	Victory Women's Group	Local chicken	0772998069
	Walusimbi K.	m	Butenga Farmers	Hatchery/parent stock	0772467519
	Kikomo Mary	f	Mukono Local Govt	Input dealer /extension worker	0772558906
	Kigozi Robert	m	Central Market	Trader –all poultry	0782086137
	Kigozi Timothy	m	Central Market	Trader – Local chicken	0754709423
	Mark P.	m	Central Market	Local chicken	0752606319
	Sekatawa Robert	m	Central Market	Trader –all poultry	0773213985
	Kabi Gabriel	m	Central Market	Trader –all poultry	
	Mrs Othieno	f	Producer	Hatchery/parent stock	0772420792
	Dr. Asiimwe Allan	m	Mukono Local Govt	Extension worker	0781442862
Soroti	Louis Masaba	m	Tujjenge MFI (U)	Ag. Branch Manager	0772984219
	Thomas Epangu	m	Tujjenge MFI (U)	Agriculture Officer	0779038648
	Ekuru William	m	Tujjenge MFI (U)	Animal Husbandry Officer	0782109292
	Opus Max	m		Local & Layers	0754124102
	Ladu James	m		Layers & local	
	Namugaya Moreen	f		Layers & local	0792124102
	Amoding Petua	f		Local –exotic crosses	
	Namugabwe Tapeness	f		Layers & local	
Soroti	Aliwa George	m	Individual	Trader	0783713709
	Ekwami Simoni Peter	m	Individual	Trader	0773463343
	Otai Michael	m	Individual	Trader	0774114450
	Imalingat J.	m	Individual	Trader	
	Akot Elizabeth	f	BRAC MFI	Loans officer/ extension worker	0775140561
	Elohu Moses	m	Individual	Hatchery- (not functional)	0772961167
	Aguro Christine	f	Individual	Veterinary Drug Shop	0782109292
Lira	Onencan James	m	Farmer	Local chicken	0774336886
	Akello Betty	f	Lira Local Government	Animal husbandry officer	0782516388
	Grace Ogwang	f	Farmer	Local poultry	0773355166
	Betty Aboche	f	Farmer	Local Poultry	0777558151
	Magret Okongo	f	Farmer	Local Poultry	0791759094
	Okot Patrick	m	Farmer	Broilers	0782790796
	Obong Cypriano	m	Farmer	Local poultry	0772392036

	Betty Emeju	f	Farmer	Local poultry	0782140231
	Eyen Richard	m	St. Augustine Chicken Sellers Association	Trader	0775316549
	Opejo Michael	m	“	Trader	0772984488
	Ocen Gwido	m	“	Trader	0774158861
	Ogwor Richard	m	“	Trader	0755605518
	Olung Awazi	m	“	Trader	0774350224
	Oluka Godfery Acuti	m	Lira Local Government	District NAADS Coordinator	0772958115
	Dr. Anthony Ogwal	m	Lira Local Government	Veterinary officer	0772921689
	Ayo Godfrey	m	Lira Local Government	Animal Husbandry Officer	0752347805
	Okello Robert	m	Input dealer	Acan Owilo Vet drug shop	0772325126
	Ogwarech Bosco	m	Input dealer	AWEBADA Vet Drug shop	0775226131
	Mugabi Dan	m	Input dealer	Kagodo feeds	0784859066
	Apio Jane Frances	f	Akony Kori Agenga Farm project	Commercial layer & broiler	0773880658
	Augustine Omara	m	AJP farm	Layer Parent stock	
Hoima	Ssentongo Joseph	m	Vetcare drug shop	Sales person	0782973273 0702973273
	Kizito Geoffrey	m	Vetcare drug shop	Extension worker	0779724540
	Koojo Plaxeda	f	Farmer	Local & layers	0772553655
	Dr. Ruberenga	m	Vetcare drug shop	Veterinary Surgeon	0701510263
	Kyamanywa Nurudin	m	Hoima Local Government	Extension worker /farmer	0772642786
	John Mpanga	m		Feed processing	0772427594
	Byamukama Johnson	m		Trader – local an layers	0777222306
	Banage Esther	m	Vet care poultry feeds	Feed miller	0776353069
	Dr. Scola Bwali	f	Angella Farm	Hatchery/Parent stock	0772454518
	Dr. Kajura Charles	f	Hoima Local Government	District production officer	0772640527