



**The Impact of Improved Grades and Standards
on the Export Potential of Targeted Commodities
in Malawi**

Phase One Assessment and Recommendations for Phase Two

For

The Regional Center for Southern Africa (RCSA)

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Executive Summary

Malawi's traditional exports, tea and tobacco, are vulnerable to international pressures (price, politics and quality), the high cost of imported inputs and high transportation costs to global markets. As Malawi seeks to diversify agricultural production and agro-processing beyond tobacco, the mechanisms to communicate accurate and timely market information through the supply chain from global markets to rural local producers will be a key factor in determining the success of any diversification strategy.

Improved Grades and Standards (G&S) have the potential to increase trade by improving the flow and consistency of market information throughout the supply chain. Consistent G&S assist distant trading partners locate, negotiate and purchase commodities without the need (and cost) of visual inspection. Grades and standards assist communication between producer and buyer, lower transaction costs and help secure market preference. G&S assist product differentiation in increasingly competitive markets by communicating quality and safety. In an increasingly globalized world economy, in which trade liberalization has exposed Malawi and other Less Developed Countries (LDCs) to increased market competition, improved grades and standards present an opportunity for Malawi to achieve a competitive advantage in certain commodities in the global market. Weak grades and standards, similarly, threaten Malawi's successful integration in world markets.

This report begins with a brief survey of Malawi's economic structure and market performance since independence and an assessment of the trend in terms of trade for Malawi's primary exports. The next section reviews Malawi's historic trade patterns with reference to the effects of rapid market deregulation and the resultant market-chasing behavior of smallholder farmers. Widespread informal trade between Malawi and neighboring countries is noted with reference to the newly formed, private sector-driven Growth Triangle (ZMM-GT) between Zambia Malawi, and Mozambique.

With this background to production and trade in Malawi, the body of the report focuses on a review of commodities and an assessment of the relevant Grades and Standards issues at each stage of the supply chain.

By focusing on the market expansion potential of selected commodities, and the benefits that would accrue from improved G&S, we can begin to assess the economic benefits of a Grades and Standards initiative. Research conducted in this phase determined three commodity categories: those that have little export potential even with grades and standards improvements; those that have potential to substitute for currently imported commodities with an improved G&S profile and those commodities that have substantially expanded export potential with improved G&S. Specific G&S issues are identified for each commodity at each stage in the supply chain. To illustrate the economic benefits that accrue with improved G&S, a sample cost-benefit analysis of improved G&S in four targeted commodities is presented. While the G&S interventions in each example are relatively low cost, the benefits range from 20-40%.

Reference is made to the current status of grades and standards in Malawi and the institutional capacity within Malawi to effectively enforce an improved grades and standards regime. The report concludes with an assessment of the likely benefits to

Malawi from a comprehensive grades and standards initiative. In addition to assessing the benefits, this report summarizes four significant G&S constraints to increased export and makes recommendations of practical steps to consider in phase two in order to rectify the G&S constraints. The recommendations include steps to:

1. Increase the capacity of the Malawi Bureau of Standards;
2. Develop a market linkage strategy that would build upon the private sector initiatives within the ZMM-GT;
3. Provide technical assistance to private sector seeking to implement HACCP and other G&S applicable to agribusiness;
4. Develop a 'one-stop export shop' to streamline export processing;
5. Establish a Private Sector Forum of Grades and Standards to increase dialogue and dissemination of information regarding global trends in grades and standards;
6. Increase the analytical role of FANARPAN (Food Agriculture and Natural Resources – Policy Analysis Network) to better understand the cost/benefits that are related to increased regional harmonization of agricultural and export policies;
7. Strengthen FANARPAN as a regional information clearinghouse related to regional harmonization, and,
8. Increase government awareness and support for improved G&S through short-term study and fact finding opportunities in other developing countries with more advanced G&S regimes.

Attached to the report is a listing by sector of the key players in Malawi's agricultural production, processing, export and grades and standards systems.

ACRONYMS

ADMARC	Agricultural Development and Marketing Corporation (of Malawi)
APRU	Agricultural Policy Research Unit
ASTA	American Spice Trade Association
COMESA	Common Market for Eastern and Southern Africa
FAO	Food and Agriculture Organization of the United Nations
FTA	Free Trade Area
G & S	Grades and standards
GDP	Gross Domestic Product
HoDoM	Horticulture Development Organization of Malawi
ICBT	Informal cross-border trade
LDCs	Less Developed Countries
MEPC	Malawi Export Promotion Council
MIPA	Malawi Investment Promotion Agency
MRB	Malawi Reserve Bank
NASFAM	National Smallholder Farmers' Association of Malawi
NSC	National Seed Company
PAMA	Paprika Association of Malawi
PTA	Preferential Trade Area
RCSA	Regional Center for Southern Africa (USAID)
SADC	Southern Africa Development Community
UNDP	United Nations Development Program
WTO	World Trade Organization
ZMM-GT	Zambia Malawi Mozambique Growth Triangle
AGOA	Africa Growth and Opportunity Act

Members of the Malawi Preliminary Assessment Team

Team members conducting this assessment included the following:

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1. Interpreting the Scope of Work

The Scope of Work (SOW) addresses improved grades and standards (G&S) as a strategic element to expand the market potential for agricultural commodities produced in Malawi, Mozambique and Zambia. This preliminary assessment is particularly focused on Malawi and is to be complemented by similar preliminary assessments in Mozambique and Zambia in early 2001.

Grades and standards are an increasingly important factor in export market development for agricultural commodities worldwide. Standards define what is to be traded on the global market, establish preferred processes, systematize expected quality levels globally, and make possible location of sourcing and production anywhere in the world by communicating the same information about quality to buyers and suppliers. Standards determine who produces what for which markets and what prices will be achieved for production in the global market.

In many Less Developed Countries (LDCs), grades and standards are non-existent, informal and/or erratic. Where G&S are not consistent with the requirements of increasingly globalized buyers, producing entities will face stiffer competition in some markets and exclusion from others. The SOW requires an assessment of the potential for expanded trade and market development for selected agricultural commodities, with particular reference to the role of formal G&S in market identification and development.

The Scope of Work is structured into two distinct phases. In this stage, Phase I, identification of target commodities with significant potential for expanded trade that could benefit from a grades and standards initiative is required. G&S opportunities and constraints related to expanded trade are broadly reviewed. An initial assessment of the magnitude of cost savings or increased export potential is made for each targeted commodity. Analysis of interviews with and data collection from major players who are currently implementing or facing G&S issues with the target commodities is a key source of information in this phase. An assessment of current regional and international G&S contexts then provides the basis for a preliminary evaluation of the prospects and benefits that would accrue if a comprehensive grades and standards initiative were undertaken in Malawi.

Improved grades and standards should be pursued if it can be demonstrated that such an improvement will contribute to expanded markets for Malawi's agricultural exports. Thus G&S are a tool for increased market access regionally and globally. In the end, the effectiveness of any strategy to improve grades and standards in Malawi should be measured by market access and economic performance gains.

2. Malawi's Economic Performance in Perspective

Agriculture is the backbone of the Malawi economy. Agricultural production and marketing contributes over 35 percent of GDP (1998), employs more than 80 percent of the working population (1997), supports 85 percent of the population and accounts for 90 percent of foreign exchange earnings. Production is heavily concentrated in tobacco,

tea and sugar for export and in maize for domestic consumption and trade in years with good crop yields.

During the fifteen years following independence (1965-75), the economy exhibited significant vibrancy, with real per capita income growing by an average 3 percent per year and GDP rising at an annual rate of 5.8 percent. Falling world prices for tobacco and tea, coupled with rising oil prices and the disruption of rail and road links through Mozambique for export, led to considerable weakness in the terms of trade for Malawi's traditional exports by the mid 1970s. These weaknesses in the agricultural export sector were exacerbated by a severe drought in 1979-80, the consequent necessity to import maize at high prices and the maturity of external debt which created further foreign exchange demands. Negative GDP was recorded in 1980 and 1981 and current accounts deficits of 25% of GDP in 1979 and 16% of GDP in 1981 (Ministry of Agriculture and Irrigation Development, 2000) indicated the extent of macroeconomic deterioration.

A package of structural adjustment reforms were implemented beginning in 1981. Between 1982 and 1985 the economy grew at a rate of 4.1 percent, resulting in positive trade balances and reduced current accounts deficits. However, by 1986 a large influx of refugees from the conflict in Mozambique and increased transport costs for exports led to further negative terms of trade. Further adjustment measures were implemented that aimed at removing artificial constraints to growth including reforms to redress agricultural policy bias against smallholder farmers and increasing private sector participation in all sectors of production and trade.

During the period of adjustment, the trade regime was initially restrictive (1981-1987) as exchange controls on imports were introduced to restrict foreign exchange flows. Between 1988 and 1991 imports were liberalized under the Industrial Trade Policy Adjustment Programme. Prior approval by the Reserve Bank for the use of foreign exchange for imports was eliminated in 1994, and the exchange rate was liberalized to approximate a market-basis (Cromwell, 1992). It was anticipated that these reforms would assist the agricultural sector by facilitating the import of inputs by the most efficient users, would help maintain or raise real prices and enhance prospects and incentives for agricultural exports.

Economic performance since 1995 has been irregular. The average annual inflation rate fell from more than 83 percent in 1995 to 9.2 percent in 1997 and real growth averaged 10 percent per year during the same period. While recovery from the 1994 drought accounted for some of this growth, real growth and output diversification in the smallholder agricultural sector powered much of the expansion. Since 1997, economic performance has been marked by erratic commodity production, devaluation of the Kwacha by over 100% and stagnant export volumes.

3. Malawi's Agricultural Trade Patterns

Malawi's agricultural export sector is defined by trade patterns that reflect its colonial past, and is concentrated in the tobacco, tea and sugar subsectors. These three products in total account for approximately 75% of total volumes of recorded exports and

80% of total export revenues in the period 1996-1998. In real terms agricultural exports have remained stagnant since 1997 while the cost of imported inputs have increased by over 100%, largely as a result of currency devaluation. Informal trade appears to be increasing.

The agriculture sector in Malawi is characterized by dual production structures: estate and smallholder production. This structure, inherited from the colonial era, was enforced during post-independence through a legislative and policy framework (e.g. the **Special Crops Act**) that encouraged monopolistic production of high value crops by estate agriculture as a central strategy for managing agricultural export growth (Tsonga 1999).

Agricultural trade was constrained until 1995 by policy and legislative initiatives, particularly the **Agricultural and Livestock Marketing Act** which restricted smallholder marketing of low value cash and food crops such as maize, rice, and beans. In essence this Act gave monopolistic marketing rights to the Agricultural Development and Marketing Corporation (ADMARC), limited the formal markets for smallholder production and gave ADMARC access to inputs at subsidized prices. ADMARC acted as the preferred supplier of inputs and guaranteed buyer of produce. The intent of ADMARC was to “smooth” the cyclical nature of commodity markets. The result was the creation of a cycle of farmer dependence upon an artificially guaranteed market and distortions in the flow of information from markets to producers. Market demands for improved grades and standards were often undertaken by ADMARC after purchasing commodities from farmers (e.g., cotton cleaning) thus reinforcing the isolation of farmers from G&S requirements.

The **Special Crops Act** and the **Agricultural and Livestock Marketing Act** have been reviewed since 1994 and now allow for private sector importation of inputs and purchase and distribution of produce. This newly liberalized market environment for agricultural products, presents a learning curve for all producers in Malawi. The short-term effect in Malawi has been cyclical “market chasing” by small hold producers in which farmers scramble each planting season to best-guess which crops will offer the premium returns at market time. This has repeatedly been described to the interview team, as “Malawi farmers are great imitators. Farmers will plant this year what they saw their neighbors sell at good prices last year.”

While not unusual, market-chasing demonstrates a number of factors which inhibit agricultural growth in Malawi, e.g., (1) a lack of and distortions in current market information, (2) a lack of entrepreneurial risk taking (3) an inability to store products for sale when markets are most favorable (thus reducing market risk) (4) a lack of crop specialization which would lead to strengthened knowledge about production techniques and (5) a lack of consistent vertical linkages.

The result is extreme production fluctuations in certain commodities that can be attributed to a combination of market chasing and government or donor interventions

that have artificially promoted one crop over others.¹ In summary, the liberalized market conditions that small hold farmers have faced in the last decade, combined with recurrent drought, have resulted in production that is based on hoped-for short-term gains. Such market chasing is locally oriented, undermines long-term export potential since supplies are not consistent year to year, and destabilizes vertical linkages in the supply chain since producers must look each year to find new markets for different products.

4. Malawi's trade in a global context-Grades and Standards Issues

Grades and standards are tools to communicate information through the supply-chain. The following factors impact upon the necessity for improved G&S and the local capacity to meet those requirements

- Formal measures and agreements to liberalize trade
- Export constraints
- Emerging trends in the global environment
- Informal cross-border trade (ICBT)
- The Zambia, Malawi, Mozambique Growth Triangle (ZMM-GT)

4.1. Formal Agreements

The conclusion of the Uruguay Round Agreement in 1994 and the subsequent creation of the World Trade Organization (WTO) spawned a number of trade integration and preferential market agreements worldwide. The gradual re-integration of South Africa in the world economy after the 1994 elections added impetus for new trade agreements among other countries within southern Africa.

The Common Market for Eastern and Southern Africa (COMESA) was established in 1994 to deepen and strengthen market integration of member countries regionally and globally.² Parallel to COMESA is the EU-South Africa Free Trade Agreement. Completed in 1999 and nearing implementation the real benefits to the South African economy through access to EU markets will be phased in over ten years, while the reduction of South African tariffs on EU products will be graduated over twelve years. The African Growth Opportunity Act (AGOA) opens new American market opportunities to 39 targeted African countries in both textile and agricultural products.

Taken together, these agreements offer new opportunities for increased African exports. The re-entry of South Africa as the dominant southern African exporter increases the cost and quality factors for all other potential African exporters,

¹ Production fluctuations are often extreme ranging from 800 000 mt maize in 1994 to 2.5 million mt in 1999; rice production varies by 60% between 1995-1998; soya volumes have varied by as much as 700% and correlate to prior year's market prices.

² To this end all COMESA signatories agreed to the establishment of a Free Trade Area (FTA) by October 2000 with a 100% tariff reduction on all products. In addition to tariff reduction, COMESA seeks to reduce non tariff barriers between members, develop customs cooperation, simplify and codify Rules of Origin and harmonize monetary policies leading to monetary integration by 2025.

including Malawi. South Africa's relatively developed transport, communication and agro-processing infrastructure increase the competitiveness of South African exports over other regional exporters. To compete at all, improved grades and standards will be a key component to Malawi's export growth.

4.2. Export Constraints

Malawi's agricultural exports are hampered by high input costs due to cumbersome logistics, rigid local producers of seed stock, unpredictable

production levels sometimes exacerbated by donor activity, a rigid regulatory environment and no discernable local demand for high quality at any stage of the supply chain. In such a domestic environment, trade liberalization may render Malawi's exports less competitive by increasing global market competition while exposing domestic production to increased flows of imported goods. The following briefly highlights critical export constraints.

4.2.1. Logistics

Landlocked Malawi routes exports for global markets overland to the Nacala port in Mozambique or by airfreight. With no direct flights to Europe and only regional flights to Nairobi and Johannesburg, transport costs and delays are a significant export barrier for Malawi's commodities. Transport from Blantyre to Nacala range from US\$40-US\$50 per ton and take up to three days. Low value Malawian commodities are at an immediate comparative disadvantage relative to similar exports from South Africa. Similarly, telecommunications and connectivity between Malawi and global markets are costly and time consuming, raising transaction costs and causing the loss of markets for similar products to South Africa due to easier and less costly communication.

Handling and storage facilities for export bound commodities are limited in Malawi. No cold storage facility is available at Lilongwe International Airport and just one cold storage room is available in Blantyre. Cold storage trucking appears by observation to be limited. Combined, these limitations make high value perishable commodities unlikely candidates for global markets until the necessary infrastructure is established.

4.2.2. Institutional Constraints

At the macro-economic level, Malawi's exports are constrained by high interest rates, volatile exchange rates and inflation, and a cumbersome regulatory environment. High taxes on imported primary and intermediate inputs contribute to high prices, creating incentives for informal trade. The volatile and unfavorable macro environment contributes to increasingly uncompetitive positions for some locally produced goods.

A contributing factor is an increasingly apparent "low price-low quality" cycle. Due to the recent economic stagnation, price is the single determinant in most transactions. The drive to achieve ever lower prices has had a noticeable and pronounced negative effect on quality, a factor repeatedly mentioned by private

sector interviewees in this study. The potential for Malawi to successfully export based on price alone is limited. The emerging global trade environment regards consistent food and agricultural standards as a starting point for expanded commodity trade.

The Malawi Bureau of Standards is charged with the statutory responsibility to assess all products entering Malawi for formal sale and is used as the local benchmark for product testing prior to export. Interviews indicated mixed sentiments about the ability of the MBS to complete tests for export with accuracy and consistency. Capacity strengthening of the MBS, in line with private sector requirements for specific testing capability, would substantially mitigate this current export constraint.

4.3. Emerging Trends in the Global Environment

Food and agricultural standards are emerging as a particularly important aspect of the institutional framework of global markets in an era marked by the twin forces of globalization and agro-industrialization. The role of standards, as well as how they are set and implemented, is shifting as the global agrifood system adapts to these forces. Specifically, the market context is changing due to the shift from homogeneous markets to differentiated markets, a reorientation from national markets to global markets, moving from spot markets toward vertical coordination and integration, and the restructuring of economies and policies from planned to market driven.

In order to compete in the global marketplace, Malawian exports must meet increasingly stringent standards set by importing country governments, industry associations and individual firms. Currently Malawians are either unaware of these trends, do not comprehend their importance or act in a completely reactionary mode. While these trends pose many threats to the Malawian agrifood system due to its weak systems of grades and standards, there are also opportunities that can be captured through improvements in standards.

4.3.1. New Consumer Environment

Over the last ten years, changing consumer demands with respect to food products have greatly changed the global agrifood market. These changes are most profoundly evident in Europe and the United States, which set the stage for the global marketplace. These issues dominate the global agrifood market and are becoming the new "consumer rules of the game." The most important trends include an increased concern over food safety, health consciousness, globalization of tastes, and social and environmental concerns.

In recent years, food safety scares have occurred in almost every industrialized nation. Among the most notorious are mad cow disease in the UK and most recently France, e-coli in Odwalla apple juice in the US, and the Belgium dioxin crisis. Illness from contaminated food occurs frequently and consumers have become very concerned over food safety issues. Consumers are demanding

assurances of food safety from their governments, supermarkets, restaurants, school cafeterias, food processors and farmers.

Consumers are now just as concerned, and in some instances more concerned, about microbial contamination as with pesticide contamination. However, concerns over pesticide use have not disappeared. The most important current trend related to pesticides is the harmonization of maximum residue levels (MRLs) in the European Union. Under the new EU MRLs several large importing nations will be applying much stricter residue levels than before harmonization. Producers and exporters in other African countries have expressed great concern over meeting these standards. It is a telling sign of the level of development of Malawian exports and the level of current market knowledge that not one person in Malawi raised EU MRLs as a concern.

Increased knowledge on the link between diet and health has also driven an increased focus on what type of food we eat. Research that has linked certain types of diets with decreased risk of cancer and heart disease have contributed to a shift in eating habits and increased demand for certain types of foods. This trend coupled with food safety concerns has caused consumers to think more about what they are eating and where it is coming from.

Another important trend in food consumption is the globalization of consumer tastes. Increased interest in traditional foods from around the world has increased the demand for imported foods. Also consumers are becoming increasingly interested about the origin of their food and how it was produced, particularly with respect to environmental and labor standards.

These consumer trends have led both governments and individual business firms to implement standards to meet these demands. A proliferation of both voluntary and mandatory labeling of food products has emerged. For example, in France, the country of origin of fresh fruits and vegetables must be displayed in all types of markets while nutrition labeling in the US is very strict. Several types of private labeling and certification have emerged to address consumer concerns over how food is produced including organic and fair trade labeling, which are often backed by strict codes of conduct.

4.3.2. New Business Environment

Over the last ten years the global business environment has also seen two important changes that have led to an increased focus on standards, concentration in food retailing and changes in legal liability. Supermarkets have become one of the most powerful actors in the agrifood supply chain. In Europe, estimates project that over the next ten years there will be only 20 significant retailers serving a European market of over 400 million consumers. While concentration in the US has not reached the same level as in Europe, a similar trend is occurring. Supermarkets have become the ultimate "gatekeepers" of consumer information with detailed demographic and point-of-sale information obtained through customer loyalty programs. Also, in the wake of food safety

disasters, European consumers lost their confidence in their governments to guarantee a safe and secure food supply and thus, supermarkets have taken the role of protecting the health and safety of their consumers. For those who are successful, the reward is strong consumer loyalty. However, it only takes one incident for the trust to be broken.

Also, recent changes in legal liability of illness or harm due to food consumption have prompted food processors and retailers to implement strict quality control and tracability requirements. In the UK, the Food Safety Act of 1990 requires that food companies follow “due diligence” in the manufacturing and handling of food products, including product procurement. Under this law, food companies can’t be deemed liable for product defects if they can prove they took all reasonable precautions to ensure the safety of the product. This includes precautions taken during the production process and precautions to ensure that purchased inputs are safe. In the U.S., there is not a specific law requiring food companies to pursue due diligence. However, the threat of civil litigation from injured consumers has led food companies to practice a form of due diligence.

These new consumer and business environments have led to an increased focus on grades and standards in agrifood systems. Quality assurance schemes in food and agricultural production including ISO 9000³ and HACCP⁴ as well as industry specific (e.g., beef) quality schemes and codes of practice are now widely used and mandated by law for certain products. Moreover, the need to control quality and tracability affects the choice of governance structure of transactions leading to the use of more production contracts and vertically integrated production in order to meet the standards.

4.4. Informal Cross Border Trade

Informal cross border trade between Malawi, Mozambique and Zambia is significant in volumes and value. Restrictive policies such as import tariffs, quotas, state trading monopolies and export licensing create incentives for informal trade. Unofficial trade between neighboring countries in agricultural commodities is an indicator of the relative comparative advantage existing in respective countries.

Informal commerce between Malawi, Zambia and Mozambique and Tanzania forms a trade triangle from Karonga (Malawi/Tanzania/Mozambique) to Mchinji (Malawi/Zambia) to Dedza, Ntchewu and Mulanje (Malawi/Mozambique). Maize, Irish potatoes and sugar are the predominant agricultural commodities traded informally. A comparison of informal and formal trade values between Malawi

³ ISO 9000 is a quality management systems standard that is not tied directly to product quality but rather an attempt to measure a manufacturer’s internal quality control systems against an international standard.

⁴ HACCP is an acronym for Hazard Analysis and Critical Control Points. It is food safety quality assurance scheme that is widely used in the food production and processing industries in the US, Canada, Europe, Australia, New Zealand, and Japan. While US regulations only currently require mandatory HACCP adoption in the meat and poultry industries, elements of HACCP type principles are included in many food safety regulations.

and her neighbors is revealing. While not disaggregating agricultural and non-agricultural trade, the total formal export from Malawi to neighboring countries was US\$9.5 million in 1994 (the last year for which accurate formal data was available) or 69% of estimated informal exports. Similarly, formal imports from Malawi's neighboring states amounted to US\$18.9 million or 62% of estimated informal imports (Minde and Nakhumwa, 1998).

The volumes of informal trade between Mozambique, Malawi and Zambia (and to a lesser extent Tanzania) indicate market opportunities that are currently unfulfilled by the formal sector. There are a number of institutional, logistical and market constraints to broader formal trade between Malawi and her neighbors. The diversion of trade to informal routes reduces government income and avoids safety and other standards that would be part of formalized trading.

An initiative by the private sector in Malawi, Mozambique and Zambia and supported by the United Nations Development Programme seeks to integrate market opportunities across transnational economic zones. The Zambia-Malawi-Mozambique Growth Triangle (ZMM-GT) roughly corresponds to the geographic area outlined in the above review of informal cross border trade.⁵

4.4.1. Formalizing the Trade Triangle: Zambia, Malawi and Mozambique

Transnational economic growth zones are a feature of Asian economic development⁶ in which differences in factor endowments and market structures are exploited to promote external trade and investment for mutual growth of the participating countries. The creation of a Growth Triangle is a means to encourage economic growth for cross border zones (typically underdeveloped) by leveraging complementarities to maximize growth potential.

The proposed Zambia, Malawi, Mozambique Growth Triangle (ZMM-GT) was inaugurated in November 2000 after lengthy preparation.⁷ Harmonization of trade protocols is an essential element of the ZMM-GT, urgently promoted by the private sector in each country. Thus, a working Private Sector Forum (PSF) has been established in Zambia, Malawi and Mozambique to drive the Growth Triangle. Grades and standards issues, while not formally addressed by the Growth Triangle at this stage, are considered indispensable in the drive to promote increased exports from Zambia, Malawi and Mozambique.

The formation of the ZMM-GT and its coordinating function in the Private Sector Forums of member countries provides a logical forum in which to locate further G&S initiatives. In Malawi, the ZMM-GT is committed to private-public

⁵ The geographic boundaries of the ZMM-GT are still under discussion and may grow to include Blantyre, the commercial center of Malawi, and Manic Province in Mozambique.

⁶ The Indonesia-Malaysia-Singapore Growth Triangle and the Mindanao Growth Triangle are representative Asian examples.

⁷ Participation in the ZMM-GT has been formally approved by the governments of Zambia and Mozambique. Formal Government of Malawi approval is expected shortly.

partnerships to improve G&S capacity, to increase knowledge of global G&S requirements, and is well positioned to apply pressure as needed to relevant government agencies to streamline exports. In short, the ZMM-GT is a new structure, with close ties to both the private sector and the Ministry of Commerce and Industry that has the will to assist the development of a culture of improved grades and standards for Malawi's exports.

The Zambia, Malawi, Mozambique Growth Triangle is the private sector's initial efforts to capture markets and synergies that are already recognized by informal traders. A G&S initiative in the ZMM-GT would serve to increase quality and differentiate products in the marketplace. Informal trade will probably always thrive between Malawi, Mozambique and Zambia due to cultural ties and extremely porous borders. But a G&S initiative may create incentives for formalized trade. Currently, there is so little product differentiation in processed or unprocessed commodities on grades and standards factors that there is no incentive to trade formally. Improved quality through G&S in, say, Irish potatoes would address an unmet market demand for potatoes of larger size and uniform color. The degree of price premium the market would bear needs to be studied.

This assessment envisions that the most effective grades and standards initiatives will be those that are private sector driven, meet existing market demand and bring benefits to local, regional and global markets. As such, the formation of the ZMM-Growth Triangle is opportune at this time and may facilitate the spread of G&S through the private sector of the three countries.

4.5. Assessing South Africa's Role

Though not overtly stated in any of the interviews conducted for this study, it is clear that one of the factors prompting the ZMM-GT is the perceived economic threat posed by South Africa. Indeed, most private sector interviewees mentioned South Africa both as one 'model country' that has successfully streamlined many of the processes required for quick and successful export growth, and also as the major obstacle to their own export growth.

South Africa threatens Malawi's private sector exports due to four market factors that are well-known: price, quality, agility and consistency. For example:

- Industrial confectionary users of maize flour are often able to purchase South Africa flour at lower cost (including transport) than Malawian maize flour.
- South African Irish Potatoes are higher quality than Malawian potatoes, reducing Malawi's export potential to all but the lowest-priced markets.
- South Africa can fill container ship loads of pigeon peas for Indian buyers within 48 hours of receiving the initial order. It takes Malawi's largest pigeon pea exporter an average of 12 days to complete a similar order.

- South Africa's highly organized system of agricultural grades and standards ensures a high degree of export consistency. Consistency of quality and supply appears to be a significant negative factor among buyers of Malawi's exports.

With those negative factors acknowledged, we did conclude that South Africa could play a valuable role in several ways.

- Grades and standards specialists from CSIR, Pretoria (FoodTek) could provide valuable consultative services to Malawian exporters that seek to increase market access through improved G&S.
- South African joint ventures with Malawian firms can expand local G&S capacity while also expanding market knowledge. One confectionary firm in Malawi is considering joint ventures with a South African firm to produce items for sale in central Africa.
- Involving the relevant South African officials in ongoing trade and seed harmonization negotiations is required in order to maximize regional trade strength. We realize that there are short-term disincentives for both Malawi and South Africa to cooperate on trade harmonization. However, the long-term benefits of regional integration are substantial.

South Africa's role, particularly as an example of successful business linkages that promote small enterprise growth, is further illustrated in Recommendation 2.

4.6. Private Sector Limitations

Malawi's private sector is vibrant, though underdeveloped and vulnerable, largely a result of government policies that concentrated resources and technical capacity in large estate production of a few primary products for export. Capacity, knowledge, market savvy and entrepreneurial spirit were confined to a small sector of the economy, which was further enticed with preferential tax treatment. Concurrently, high import taxes were charged on capital investments in other industries requiring foreign technology. This combination of productive concentration and limited resources in other industries contributes to an underdeveloped private sector.

Most of Malawi's private sector, other than estate production, has little experience with formal international trade. Illustrative of this is the fact that Malawi's trade with Europe, Asia and North America not increased as a proportion of nominal GDP since 1990, while such trade has increased with its SADC region partners (Chipeta, undated). While South Africa's reintegration into the world economy is one contributing factor for Malawi's increased trade with the SADC region, Malawi's inability to meet increasingly stringent international grades and standards appears to be noteworthy. Numerous anecdotal accounts of lost trade opportunities surfaced during the interview phase of this study. In a number of instances unacceptable quality and SPS factors were decisive.

5. Selection of Commodities for Grades and Standards Emphasis in Malawi

Diversification of Malawi's agricultural production beyond tobacco and tea has given rise to a number of studies (Jaffee, 1997; Schwartz, 1993; Banda, et al 1996; Nakhumwa et al, 1997; Jansen, et al, 1994; Keyser, 1997) that suggest likely crops for renewed emphasis. Suggested alternative crops include rice, castor seed, cut flowers, groundnuts, spices, cashew nuts, coffee, fruits and medicinal plants. The list of potential alternative crops expanded further as many of the interviewees that formed part of this study suggested crops based on their personal information base. Interviewees suggested fruit processing, natural coloring products, organic produce, sugar and guar beans, sesame, high value spices, cotton and citrus. These suggested alternatives, combined with the commodities suggested for review in the Scope of Work present wide opportunity for creative study of production expansion. At the same time, the seeming lack of focus on suitable alternatives to tobacco (represented by this wide variety), in itself, suggests that the lack of knowledge about market requirements is contributing to untargeted production that may or may not result in successful marketing.

Grades and standards, as a tool to increase exports, need to be targeted in at least three ways: (1) to meet an identified market demand, (2) to increase the potential of a particular commodity to achieve a comparative advantage in the identified market and (3) to the capacity of the producer/processor/exporter to meet the requirements of improved G&S. We used these three filters (identified market, comparative advantage and G&S capacity) as a set of criteria upon which we based a preliminary selection of agricultural commodities that would benefit from improved G&S.

Four other factors have influenced commodity selection. First, it is unlikely that any single crop will replace tobacco as the dominant export crop in the immediate future, thus motivating a selection of a range of crops across commodity types (grains, legumes, horticulture, spices). Second, whatever G&S intervention is eventually implemented should be a potentially replicable model by the private sector, so the potential for profit should be already identified by the private sector in or neighboring markets. Thus crops that an interviewee 'thought' would have good potential were less likely to be selected than crops that an interviewee was already selling to an export market for profit. Third, we have considered logistical constraints in the selection of commodities with expanded export potential. Finally, we did not select crops that will only benefit from improved grades and standards in conjunction with high volume processing facilities, i.e., fruit. Such facilities do not exist in Malawi at present and will require substantial investment before G&S issues become relevant.

The commodity selection (**Table 1**) is presented at three levels: (1) those commodities for which there is no market demand for improved G&S, or for which market conditions render Malawian commodities uncompetitive; (2) those commodities for which improved G&S would increase the competitiveness of Malawian products in the local market, contributing to import substitution, and (3) those commodities for which improved G&S will substantially contribute to an increased regional and global markets.

A narrative discussion of the G&S issues per commodity and the specific export potential is attached in Appendix

**Table 1 Malawi: Review of Selected Commodities
Export Potential and Grades and Standards Issues**

Commodity	Inputs	Production	Processing	Storage and Transport	Exports	Market conditions
<i>Little Potential for Increased Exports through G&S intervention</i>						
Rice	Experimentation with different types of seed has resulted in variety diffusion.	Production is erratic; locally consumed.	Local processing equipment imported from Taiwan is suited for hard grains; processing local grains results in high losses/increased costs.	Logistics for export add cost to a product already uncompetitive on price with Thai product.	Some indicating of SADC preference for Malawi rice (aromatic). Questionable willingness to pay price premium. Broad recognition of higher cost of Malawian product.	Difficult to compete with Thai product except as niche commodity. Local market only.
Maize	Seed Starter Pack Distorts long-term cost. Hybrids increase yield and cost. Hybrid seed requires repeated inputs. OPV is stunted.	Yield per hectare unfavorable with Zambia/S. Africa. Erratic production – price variability.	Local processing as food security; cash crop during immediate pre harvest.	Storage off cob reduces grain borer infestation: Extension services G&S factor.	Logistics for export render global export uncompetitive. No long-term comparative advantage regionally; no global advantage.	Volatile markets due to climactic conditions. Local consumption and informal cross border trade only.
Macadamia	High fixed investment, imported inputs.	Young trees susceptible to disease and pests. Economies of scale require large acreage. Lag-time large between investment and production.	Low labor and processing costs.	High transport and handling costs.	Little if any smallholder potential.	World market prices dropping. Less costly wet-processing being dropped for more costly dry processing. African production has increased causing US production to concentrate on quality. Niche crop.

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Commodity	Inputs	Production	Processing	Storage and Transport	Exports	Market conditions
Banana		Production sites far from markets.	None.	Lack of storage and poor transport decrease quality.	Perishable product and logistics reduce viability.	US/EU market access conflict determines all producer market access. New exporter face stiff competition. Local consumption.
Mango	Varieties produced are fibrous, not competitive for juice or pulp.	Significant investment required in new varieties.	Limited local capacity to process.	Logistic costs/delays reduce comparative advantage.	Requires non-fibrous larger fruit.	Potential juice market with processing investment and new varieties. Local consumption.
Cabbage	High inputs in rainy season.	Local food and cash crop.	Limited.			Local consumption and informal trade.
Potential for Import Substitution through Improved G&S						
Onion	New seed varieties required.	Cash crop. Unmet demand for local high quality.		Proper storage can extend supply to off-season.	Unlikely due to logistics, regional supply.	Imports of larger sizes to Malawi. Cross border trade. Preference for larger size varieties from Zimbabwe.
Tomato	Low quality seed.	Seasonal production; pests and mold waste during rainy season. Cyclical surplus and shortage. Potential for greenhouse production.	No processing facility; large sauce users currently source from S. Africa.	High cost, perishable product unprocessed.	Limited due to varieties, seasonal production, small scale greenhouse capacity and logistics.	South Africa and Zimbabwe production saturates SADC market and exports. Partial import substitution during season. Preference for larger size from Zimbabwe.

Commodity	Inputs	Production	Processing	Storage and Transport	Exports	Market conditions
Mushroom	Quality spore currently provided with extension services by NGOs.	Easily produced in small quantities by smallholder.	Packaging will assist local marketing.	Suited to local markets, hotel industry.	Transport delay and costs mitigate against exports.	High volume S African and Zimbabwean production; regional oversupply causing stagnant to declining prices. Partial import substitution; most locally sold product is imported. Niche product.
Citrus	New varieties required.	Irrigation improves size/quality.	No local processing facility.	Limited storage capacity. Good storage can extend crop- 3-4 months.	Quality, storage capacity deficit and transport costs limit export potential.	Will not replace S African imports but local product with improved quality can gain market share. Import substitution. Local product plentiful but low quality.
<i>Substantial Potential for Increased Exports through G&S intervention</i>						
Cassava	Low cost. Currently grown countrywide. G&S for variety selection geared to market demand would stimulate use.	Low cost. Different varieties require different processing. G&S unlikely at producer level unless direct linkage with processor who would then require less fibrous varieties to increase processed volumes.	G&S for product not established ; market confusion. Need for market driven G&S in processing and finished products. Multiple uses: food security, industry, food product inputs. G&S for moisture content, impurities, Milling processes, cyanide levels post processing expand market potential.	Storage is in ground until use/sale up to 2 yrs. Fibrous content increases with age, decreasing starch yield per kg.	Current export to Spain (chips). Industrial and food input potential. Codex standards for cyanide content.	Markets for industrial inputs largely untapped. Potential for glue, glucose, bakery inputs. Low prices for unprocessed product. Premiums paid for product processed to user G&S specifications.

Commodity	Inputs	Production	Processing	Storage and Transport	Exports	Market conditions
Cut Flowers	Imported inputs and hybrids available through Dutch breeder at Dedza. New varieties required every four years for maximum output; disease resistance.	Greenhouse required, economies of scale require minimum 4 hectares.	Local capacity and knowledge available.	Local outlets identified in Blantyre, Lilongwe. Cold storage at Blantyre permit air transport to Johannesburg.	Grade 1 and 2 roses have potential in S African market. Air freight costs may impact viability	S African market shortage due to closure of 1 major producer, quality problem at another. Roses: Existing grades create two markets. Local: grade 3&4. S Africa grade 1&2. European market penetration currently is not possible due to quality and transport capacity.
Pigeon Pea	Seed variety requires standardization.	Yield questions re soil fertility. Fast maturing varieties capture market but produce smaller pea.	Multiple uses: food security, local markets, and exports. Local dhal processing.	Risk of aflatoxin contaminating in storage and transport.	Current exports to UK and India. Volatile, no value added.	Moderate volatility re: Indian production. No value added. Fast maturing variety may capture Indian market just before Indian product comes to market. Malawi dhal has comparative advantage in UK mkt. Improved G&S may open export market.

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Commodity	Inputs	Production	Processing	Storage and Transport	Exports	Market conditions
Groundnuts	Need to identify preferred variety (Chalimbana, CG7, etc) then identify processing and G&S required.	Chalimbana seed not available due to widespread introduction of CG7.	CG7 variety not preferred by some processors due to color. Confectionary uses. Little oil production.	Aflatoxin levels measured in Europe higher than levels in Malawi caused loss of markets.	Former export market to Europe lost due to aflatoxin contamination. Prior to market loss, Chalimbana kernel was preferred.	No information on current markets flows to current producers Moderate-high UK export potential with recovery of Chalimbana variety. Malawi's Chalimbana preferred over China and Argentina product.
Cotton	High cost inputs.	Expertise exists; scattered production, tobacco replacement.	Limited domestic ginning capacity. G&S are international. One weak local company.		Potential exports of finished product to S Africa and AGOA.	Highly competitive world market.

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Commodity	Inputs	Production	Processing	Storage and Transport	Exports	Market conditions
Coffee	High input costs, extension services required.	Significant out-grower potential and vertical linkage.	Stringent standards to meet IOC standards. Malawi Bureau of Stds. Needs assistance to complete quick and accurate turn-around of tests.		Malawi coffee is a filler product-thus potential in blended and instant coffee products.	Brazil is competition. Low production levels in Malawi; depressed world price. Niche crop for out growers linked to larger producer. Malawi coffee Association controls Malawi exports; issues certificate according to IOC standards.
Irish Potato	Low quality seed. Need for new varieties. OPV is stunted. Quality product requires new seed every 4 yrs.	Low quality small product.	Food processor actively seeking higher quality potato for commercial product. Universal Industries currently imports from SA to reduce waste in processing. Local varieties up to 25% waste; imported less than 1% waste.	Poor storage conditions. Potential for improvement.	Universal industries required 20 mt per week for processing. Substantial opportunity for increased market share through increased G&S.	Regional demand for processed product; Malawian product could challenge S African product in Mozambique and Zambia.
Bird's Eye Chilies	New seed each year. Seed availability may be a constraint.	Wide production areas.	Drying is the critical stage; low tech drying increases foreign mater, microbial contamination, etc.	Risk of aflatoxin contamination and other contaminants (rodent hair).	Exports to EU, Australia and sauce to SADC region and UK.	Increasing world demand.

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Commodity	Inputs	Production	Processing	Storage and Transport	Exports	Market conditions
Paprika	Need new seed each year.	Cultivation same as tobacco reduces need for extension service. Potential for smallholder diversification from tobacco.	Currently outdoor and uncontrolled. Need controlled drying and handling for price premium. Processed product must meet ASTA G&S guidelines. Local capacity for grading.	Low weight/not perishable. Risk of microbial contamination and aflatoxin.	Current exports to Spain and US.	Spain is major importer. Current production could be tripled to 10,000 mt without market distortion. Zimbabwe may increase production.
Ginger and turmeric	Small size variety; pungent.	Little production expertise.		Low weight/long life.		Moderate niche crop.
Annatto and similar products.		New crops; untested.	Microbial contamination.	Risk of microbial contamination.	Natural coloring agent for cosmetic inputs. Processed product must meet EU requirements.	EU market demand.

6. Current situation of grades and standards in Malawi

The current state of grades and standards in Malawi is reactionary to the requirements dictated by export markets. The demand for quality in the domestic market is low and thus, the system of grades and standards is weak. Domestic demand for standards is driven by a need for improved quality to compete with imported goods.

6.1. G&S in the export market

Malawi exports products both regionally and globally. Exporters in Malawi view standards as market requirements, i.e., the specification that must be met in order to sell in a particular market. Very few people see standards as tools that can be used proactively to differentiate their products.

6.2. Global markets

Governments of individual importing countries have set basic minimum grades and standards that importers and exporters must meet. Additionally, individual buyers, particularly supermarkets, then set their own grades and standards that their suppliers must meet.

The current existing grades and standards can be grouped in three categories.

1. Grades and standards that relate to **phytosanitation, microbial contamination, and chemical residues** are mandatory standards for all exporters, set by regulatory agencies in importing countries.
2. The buyers set grades and standards that relate to **quality attributes** of the produce such as color, size, taste, appearance, texture, uniformity and packaging with significant influence of the consumers. These grades and standards are obligatory to exporters. These standards vary from place to place and from time to time depending on the consumer preference and trading norms.
3. Grades and standards that relate to **social and environment issues** are newly emerging market requirements that are mostly voluntary. The strictness on conformity to these standards varies from market to market. These standards are usually embodied in codes of practice, which set the rules, regulations and practices that producers and exporters must meet. The main objective of these standards is to ensure humane treatment of employees, insure safety (of the workers, bystanders and consumers), reduce use of agrochemicals, and the conservation of the environment. Current trends indicate that the importance of these standards will increase and eventually play a very significant role in future entry to markets. Already UK supermarkets are very strict on compliance to these standards by their suppliers.

Also, there is a growing demand for **organically produced produce** in most of the affluent markets where consumers are able to afford and willing to pay significantly higher prices. The grades and standards relating to organic produce are very high and growers have to be certified by a body accredited to the international organic produce organization (see Box 1).

Box 1: Organic production: looks good but do the math first!

The organic niche market is often identified as one of the most promising opportunities to increase Malawian agricultural exports. While organic markets offer several attractive benefits, they also impose several obstacles. Price premiums for organically grown products make these markets extremely attractive. However, organic production is not always an economically viable activity and its profitability and feasibility must be considered for each individual commodity and producer.

The concept of organic production and marketing is attractive to growers as well as processors because of price premiums and the input cost savings. However, growers must balance the magnitude of price premiums and input cost savings against decreased yield and quality. In some instances, the benefits outweigh the costs. However, in other cases, organic production is not an economically viable alternative.

For example, the viability of organic coffee production in Malawi is questionable given the low price premiums currently offered. On the world market, the price premium for organic coffee ranges from 7 percent to 35 percent. Currently, Malawian coffee is at the lower end of this spectrum earning a 7 percent to 10 percent price premium. This price premium is too low to justify the losses in yield and quality. The yield for organically produced coffee is about one half of the yield from conventional production. On top of that, there can be up to a 40 percent quality loss from pests and diseases compared to a one percent loss for conventionally grown coffee. Therefore, under current conditions organic production is not an attractive alternative for Malawian coffee.

The cost of organic certification and its requirements are also factors that must be considered in assessing the profitability and feasibility of organic production. Organic certification must be renewed annually by a recognized company, which means a European company. Thus, organic producers must pay the certification costs, including travel cost for the auditor. In addition, in order to obtain organic certification, land must go through a two-year transition period when certification costs must be paid but products can not yet be marketed as organic. Also, in order to achieve certification the producer must be able to show that only organic practices have been used through a system of documentation and product traceability. This poses significant obstacles for smallholder farmers and estate outgrower schemes. While organic certification is not impossible for smallholder farmers (individually or part of an outgrower scheme), significant training, monitoring, and support are necessary to achieve this.

Finally, organic certification, i.e., meeting organic standards, is a necessary condition for entry into the organic market but does not represent a complete marketing strategy. Developing long-term relationships and a reputation for quality and consistency are also key components in a successful niche marketing strategy.

Standards in category 1 (phytosanitary etc.) are the regulations required by importing country governments. Thus, the standards are embedded in a business to state, and implicitly a state to state relationship. Standards in categories 2 and 3 and possibly more stringent standards of type 1 are part of business to business relationships. As businesses react to the changing global trade environment discussed earlier, standards in business-to-business relationships are becoming increasingly important, especially social and environmental standards.

Box 2: Stricter standards change the rules of the game: The case of EU aflatoxin standards

Stricter food safety standards currently emerging in developed countries can have tremendous impact on the ability of developing countries to gain access to those markets. The primary objective of these standards is to protect the health and safety of the country's consumers. While the scientific basis of this objective may or may not be questionable, the secondary effect of reduced market access for developing countries will continue to pose challenges for exporters from those countries. The most recent food safety regulatory change that could present the greatest challenge for Malawian exports is the harmonization of aflatoxin levels in the European Union.

Aflatoxins are a groups of structurally related toxic compounds that contaminate certain foods and result in the production of acute liver carcinogens in the human body. They are found in a wide variety of foods including corn and corn products, groundnuts and groundnut products, cottonseed, milk, dried spices, and tree nuts such as Brazil nuts, pecan, pistachio nuts, and walnuts. Aflatoxins are categorized as B1, B2, G1, and G2. These toxins are usually found together in foods with aflatoxin B1 being the most predominantly found and most toxic of the four categories (Otsuki et al.).

In July 1998, the European Commission issued a directive which established standards for total aflatoxin levels and levels of B1 aflatoxin. According to the directive, EU members are to comply with the new standards by the end of this year (2000). For eight EU members, Belgium, Greece, Ireland, Italy, Luxembourg, The Netherlands, Spain, and Sweden, the new directive means they must reduce the acceptable aflatoxin levels in their imports of groundnuts by more than 50 percent.

The EU standards differ from international standards in the specification of maximum levels for B1 aflatoxins and the sampling procedures. For example, CODEX standards for cereals, groundnuts, other nuts and dried fruit intended for direct human consumption only specifies total aflatoxin levels and does not set a specific level for B1 aflatoxins. The CODEX standards assume 50 to 70 percent of total aflatoxins will be B1 and thus, the B1 level would be 7.5 to 10.5 parts per billion (ppb) of the total allowable amount of 15 ppb. This level is significantly higher than the proposed EU level for B1 of 2 ppb.

The second area of contention is the sampling procedure proposed in the directive. Sampling is one of the most important contributors to the variability of analysis and identification of aflatoxin contamination due to the non-homogeneous nature of aflatoxin distribution in foods. Under the EU directive, three tests must be conducted on a randomly drawn 30 kilograms. Each individual sample must meet the standards before the shipment is allowed into the market. This presents difficulties since the levels of aflatoxins are not distributed evenly throughout shipments. Under US and CODEX standards, the average aflatoxin levels of the samples must meet the standards, not each individual sample (Otsuki et al.).

Thus, the new aflatoxin standards are potentially a tremendous barrier to entry for Malawian exports to the EU, particularly groundnuts and spices. Exporters' ability to meet these new standards must be considered when considering whether or not certain commodities have potential for increased exports.

In Malawi, the general view of standards is more in the context of a business to state relationship. However, current trends, particularly standards harmonization in the EU, were rarely cited by interviewees as potential market access barriers. As mentioned earlier, not one person mentioned EU pesticide MRLs as a potential threat while only a

few interviewees expressed concern over the new European Commission directive on aflatoxin standards (see Box 2). The harmonization of these standards could have a profound effect on Malawian exports, yet there seems to be little awareness or concern.

Where standards associated with business-to-business relationships are acknowledged as important, the general attitude is passive acceptance (see Box 3). There is little awareness or concern over the growing importance of social and environmental standards except for organic standards.

Box 3: A tale of two companies: Success and failure in paprika exporting

Over the last five years, paprika has grown to be the one of the largest volume horticultural exports from Malawi. Quality standards for paprika exports are an important factor and have had a significant impact on market development and the success of exporters. In Malawi, the two leading Paprika exporters developed along very different paths - one successfully and one not.

Cheetah Malawi Limited began exporting paprika in 1995. The company's core business is spice exports with paprika being the main crop. They saw opportunity in paprika as an alternative or additional cash crop because of favorable world market conditions and production requirements for paprika are similar to that of burley tobacco, Malawi's current primary export. Thus, smallholder farmers already have good knowledge of the necessary production practices.

Cheetah invested heavily in both the production and marketing of paprika. In production Cheetah instituted an extension service for farmers to provide on-site technical advice to farmers throughout the growing and harvesting season. To develop markets, Cheetah makes numerous trips to Europe and the US annually and claim to know 95 percent of people involved in paprika in the world. They have developed a customer base in the largest importing country, Spain, as well as in the US and South Africa.

The largest export market is Spain, but Spanish buyers tend to be problematic, often using 'standards' to force lower prices by claiming that the quality of a shipment is below grade. Cheetah claims that the testing available in Malawi (MBS) is not consistent and cannot be used to certify quality. Thus, Cheetah has set up an independent testing lab in its sister company in Zambia for its own quality certification purposes, which it then uses to provide documentation against low quality claims by Spanish buyers.

Press Agriculture also began growing paprika about five years ago. Press is a large agribusiness conglomerate with tobacco production as the core business area. The company became involved in paprika production and exporting as part of a tobacco diversification strategy which also included expanding into tea and coffee. Like Cheetah, Press saw the opportunity for increased world production and the synergies with its core business of tobacco production.

Press also experienced problems with the strategic use of standards by Spanish buyers. The buyers claimed different quality and weights upon receipt of shipments. When faced with such claims, Press did not dispute the assertion of lower quality and accepted lower prices. Quality claims were never substantiated. This year Press Agriculture terminated its paprika production citing that it was not profitable. A contributing factor to the problem with profitability was low prices due to the strategic use of quality standards by the Spanish buyers.

The current lack of broad-based knowledge in Malawi over increasingly stringent global grades and standards, and the resultant difficulty in meeting such standards, is one factor that contributed to the particular commodities that are identified as having potential for increased markets through improved G&S (Appendix 1). The vast majority of Malawi's agricultural produce will not find easy access to current EU markets, given the dissonance between EU standards for acceptable minimum residue levels, for instance, and producers' capacity to meet those requirements. Thus, the Commodity Review in Appendix 1 concentrates on commodities with immediate import substitution and regional export potential. Global exports will grow, as the capacity to meet required G&S grows

6.3. Regional markets

While the regional markets are less demanding with respect to standards than global markets, standards are still an important element in trading relationships. The same categories of standards exist for the regional market as for the global market. However,

social and environmental standards, category 3, currently are not important in these markets. Standards across countries are in the process of harmonization in accordance with regional trade agreements, which will facilitate trade. However, anecdotal evidence points to standards also being used by some countries to impede imports as tariffs decline and/or are removed.

6.4. G&S in the domestic market

The current system of grades and standards in the domestic market in Malawi is weak. A low cost/low quality culture permeates all markets due to very low income levels and the overall poor economic climate. The weak system of grades and standards in Malawi encourages dumping of poor quality and expired products, encourages imports and foreign exchange drain, creates export discouragement, and increases transaction costs. The problem of quality is circular in that exports and processing capacity are low because quality is low and quality can not be improved without income earned from exports and processing.

There are practically no government standards for agricultural inputs currently in place, which causes several problems. First, it is difficult to obtain good quality seed for many commodities. The lack of seed certification programs leaves farmers with no guarantee that what they are buying is actually what they think it is and that the seeds will actually germinate. Second, there is no pesticide registry in Malawi, which means there is no control over what is allowed into the country or regulations on pesticide labeling and usage. Pesticides, such as DDT, that are banned in most countries are said to be available. The lack of government regulation of pesticides has led organizations like the tea board to set standards for input usage in order to conform to international standards.

Because there is basically little oversight and enforcement, there is a huge problem of dumping of expired pesticide and fertilizer products in Malawi. The products are coming from South Africa, Zimbabwe, and even Zambia. A particularly problematic issue is weight. There are a lot of "fly by night" operations selling fertilizer and inputs where the quantity is less than what is marked on the bag. This is especially true for nitrogen

fertilizer because its weight degrades after one year. So if the fertilizer is old, it is likely that the weight will not be as much as it says on the bag.

The existence of standards and the amount of grading performed varies greatly from commodity to commodity (see Appendix 1 for a complete overview by commodity). Generally, commodities exported on the world market, like tea and tobacco, have the most well developed grades and standards system. For products consumed domestically, like fruits and vegetables, only rudimentary grades and standards exist with size usually being the only factor (see Box 4).

The Malawi Bureau of Standards (MBS), which is a government institution in charge of setting and supervising the implementation of grades and standards in Malawi, sets the grades and standards followed by most processors. MBS currently inspects food processing facilities three times per year and takes samples to be analyzed for conformance. Processors pay various levies to MBS depending on the size of business and type of logo used. MBS issues a quality label to processors who meet the strictest quality standards.

Box 4: Problems with Potato Procurement: The Case of Universal Industries

Universal Industries is a family-owned Malawian company producing snack food items including potato crisps (potato chips), cassava crisps, extruded snack items and a variety of biscuits and hard candy. Universal is the only domestic manufacturer of potato chips. They produce two brands of potato crisps, one lower quality brand, Universal, which is the lowest priced in the market and a higher quality brand, Kamba, positioned to compete with imports from Zimbabwe and South Africa. Until recently, Universal has concentrated on the domestic market. Recent exports of biscuits and potato crisps to Mozambique have been successful and the Zambian market appears promising.

Potato quality is very important in order to produce a good quality potato chip with minimum waste. Universal's potato crisp production lines require 20 metric tons of potatoes per week.

The potato fryer is run at a constant temperature. When poor quality potatoes are used, the finished product comes out over-brown and with dark spots. Low quality potatoes stem from recycled varieties, early harvesting and poor storage. Potato quality degenerates rapidly after the fourth generation of use and thus, seed recycling is the major factor contributing to the very low quality of potatoes produced in Malawi. Current poor economic conditions have enhanced cash flow needs and led to an increased problem of early harvesting. Quality potatoes are particularly difficult to obtain during the off-season (dry season) due to poor storage conditions. The most common means of storage is in a pit in the ground. Product loss varies greatly with the quality of the input. High quality imported potatoes have a loss of about 3 to 5 percent. However, locally grown potatoes produce a loss of about 25 percent and up to 40 percent during the off-season.

Universal Industries has employed several strategies in order to deal with quality problems including importing, backward vertical integration and a form of production contracting. First, the company uses imported South African potatoes for its high quality brand, Kamba, when they can not obtain the necessary quality locally. Also, Universal has begun growing Irish potatoes from seed potatoes imported from South Africa. The loss with both the imports and integrated production is less than three percent. The company estate may eventually be able to reach to volumes necessary to be self-sufficient for the Kamba brand.

However, the owner realizes that his own integrated production can not supply the necessary volumes for both brands and imports are expensive. Thus, Universal has recently worked out a deal with some farmer groups to supply potatoes. The arrangement is very new and the supply of potatoes is just beginning to be processed. They are considering distributing good quality seed potatoes produced on the company estate. However, they are concerned with contract enforcement and side-selling. Paradoxically, while the company complains of quality procurement problems, it currently does not pay a price premium for higher quality potatoes. The potatoes are simply deemed acceptable or not acceptable. Unacceptable potatoes are immature and rotten potatoes and Universal tells farmers to grade accordingly. Yet, there is no price incentive for farmers to grade efficiently and consistently.

Numerous G&S issues remain to be resolved in this potato supply chain. What is the price premium for quality potatoes? Who supplies new seed inputs to maintain quality? What mechanisms will encourage widespread potato quality improvement for all producers, thus increasing market penetration?

6.5. Major players in G&S setting and implementation

There are several governmental and private organizations involved in setting and implementing grades and standards, directly or indirectly in Malawi. These organizations play different roles in setting, implementing, enforcing or monitoring grades and standards.

6.5.1. Government

The **Malawi Bureau of Standards (MBS)** is the national government body charged with the responsibility of setting, reviewing, monitoring, and implementing grades and standards. Several government agencies are also involved in the monitoring and implementation of standards but they utilize the services of MBS for developing standards. Currently, formalized grades and standards exist for 70 processed agricultural commodities. However, many of the standards are out of date and need to be updated to reflect changes in international standards.

MBS sets standards through technical committees drawn from the specific stakeholders. They develop standards based on demand from industry as well as utilizing international standards such as CODEX. MBS also inspects all food processing facilities and tests for standards conformance. However, due to capacity limitations, monitoring is erratic and limited to large enterprises. Currently, legislation is pending that would strengthen the inspection authority of MBS. If enacted this legislation would give MBS the authority to inspect and approve the opening of all new enterprises and the authority to close down an enterprise that consistently does not meet standards.

The testing capacity of MBS is limited both in terms of equipment and personnel. Most interviewees stated that MBS technicians and testing were competent but often too slow due to these capacity limitations. Also, some interviewees expressed concern over the accuracy and consistency of test results. Currently, MBS's government allocated budget is frozen at 5 million Kwacha and will drop to zero by 2003.

The **Ministry of Health and Population** has inspection authority for certain processed milk products. However, the regulations are extremely out of date and are not used in practice.

The **Ministry of Agriculture** is responsible for inspection of milk and dairy products, meat, eggs and fish. The Ministry of Agriculture is also responsible for all agricultural extension activities in Malawi and thus, one of the key actors in the provision of information and training on grades and standards and related issues. The Ministry has different divisions charged with extension activities in related crops. However, the capacity of the current extension service to provide relevant market information with respect to grades and standards is extremely limited. The extension officers, like many farmers, are still learning how to operate in a free market system. While many officers talk about the importance of marketing, they do not understand basic principles and thus, can not provide the necessary information and training to farmers.

Local authorities or city assemblies have inspection authority for the food service industry including restaurants, hotels, and institutional cafeterias. They also inspect food processors. However, the capacity is limited and thus, only the larger enterprises are inspected.

The **Customs Authority** is charged with monitoring trade flows across Malawi's borders. However, due to resource and personnel limitations, as well as bribery, only a fraction of

the goods crossing Malawi's border are checked by customs. The capacity of the customs authority to enforce existing standards is severely limited.

The **Malawi Export Promotion Council** is a government parastatal that was created to promote exports of Malawian commodities and products. The main activities used to promote products are trade fairs. They currently do not provide assistance to exporters on grades and standards requirements of potential markets. The current structure and operation of the institution is not favorable to promote this activity.

6.5.2. Private organizations

SGS International is an international certification company with branch offices in many African countries including Malawi. Some buyers require SGS certification and testing rather than MBS certification and testing because it is an internationally recognized and trusted company. SGS does not operate an independent lab in Malawi. Samples are tested either in their laboratory in South Africa or the testing is contracted out to MBS. SGS also carries out audits for certification in ISO 9000 series, ISO 14000, HACCP and codes of practice.

The members of the **Shire Highlands Organic Growers Association (SHOGA)** and the **Midlands Organic Growers Association (MOGA)** are certified by Ecocert, Germany. Funding for initial certification was provided by GTZ. A few large members of SHOGA are successfully exporting organic produce to European markets. MOGA is a newly formed organization, which is still receiving heavy assistance from GTZ. The members are concentrating on marketing their produce locally through an organic market in Lilongwe, which is organized and partially funded by GTZ. Both SHOGA and MOGA provide information and training on organic production to their members.

Several other **farmer organizations**, including **NASFAM, HoDoM, PAMA, and the Smallholder Coffee Authority**, are providing extension and training services to farmers and farmer groups on a variety of grades and standards issues related to the production and marketing of specific commodities. All of these groups receive funding support from one or more donor agencies or NGOs. In their current form, these groups and their activities are not sustainable without donor funding.

These donor-funded farmer groups and industry associations are providing the "triad of agricultural public goods", extension, teaching and research, due to the failure of the Ministry of Agriculture in providing these goods. The government failure is due to several factors including insufficient funding, inadequately knowledgeable staff, a lingering command and control mentality and institutional inertia.

7. Cost-Benefits: Grades and Standards Interventions in Selected Commodities

G&S interventions are worthwhile only when the implementation of new processes that meet external standards lead to increased market share, cost savings or both. As previously indicated in the Commodity Selection Methodology, the Malawi Preliminary Assessment has identified target commodities that have potential for cost savings and or market growth through focused G&S interventions.

This section illustrates the potential for market growth and cost savings with improved grades and standards. The examples used in this section are representative of industry-wide G&S issues. In order to highlight the effectiveness of targeted G&S interventions, the following examples examine the improvements that are possible at critical points in the supply chain.

This section demonstrates graphically the potential benefits of G&S activity with four different commodities: pigeon pea, lime, Irish potato and paprika. For each commodity we identify the following factors:

- The critical point in the supply chain at which a G&S intervention would have the greatest benefit
- The G&S factor that is addressed
- The suggested G&S intervention and a rough cost estimate
- The cost savings or price premium garnered through improved G&S; and,
- Current market conditions that relate to the improved G&S.

It is notable that each of the four Grades and Standards interventions and the cost-benefits are directly attributable to private sector activity. Indeed, the private sector stands to be an immediate beneficiary of improved G&S in Malawi, in lowering local transaction costs, reducing waste and expanding regional and global markets.

While noting the significant role of the private sector in promoting and pursuing improved G&S, the Government of Malawi and the Malawi Bureau of Standards will play a central role in the coordination and updating of G&S and testing of products for export. The MBS is central in ensuring a common public good through consistent G&S. The development and expansion of the capacity of MBS to fulfill its public mandate should be an aspect of an implementation stage. In this regard, details are noted in the section of recommendations.

Table 2 a Sample Cost Benefit analysis for Grades and Standards Interventions in selected commodities

Pigeon Pea:

Critical Factors

- ✓ Low inputs.
- ✓ Larger size preferred.
- ✓ Demand responsive to Indian market and production.
- ✓ Highest export potential between September-November, before Indian production is on market
- ✓ Widely.

Critical Supply Chain Point	G&S Factor	Intervention and added cost factors	Cost Savings/Price Premium	Current Market conditions
Input	Maturity date.	<p>Proliferate early maturing variety. Requires research and distribution of alternative varieties.</p> <p>Cost sharing with exporters possible for secure out-grower schemes.</p>	20-40% price premium for export to India/UK during September-November.	Current Malawian Export competes with massive Indian production due to late harvest.

Table 2b Sample Cost Benefit analysis for Grades and Standards Interventions in selected commodities

Lime:

Critical Factors

- ✓ Malawi's soil tends toward Ph of 3.7-4.0.
- ✓ Low Ph inhibits fertilizer absorption.
- ✓ Low fertilizer absorption rates encourage higher usage and increased input costs.
- ✓ Liming is necessary for maximum fertilizer effectiveness.
- ✓ Lime granule size is critical to eventual fertilizer absorption.

Critical Supply Chain Point	G&S Factor	Intervention and cost factors	Cost Savings/Price Premium	Current Market conditions
Processing of local lime	Size of lime granule.	<p>Customary lime grinding is rough and large (150 microns) Lime ground to 250-300 microns achieves 40% faster fertilizer absorption.</p> <p>Little, if any, added cost. Requires accurate transmission of information through input supply-chain.</p>	Every farmer who limes could achieve immediate 25% reduction in fertilizer useage/cost with no decrease in productivity.	No current standards for lime processing. Simple G&S on size would decrease input costs in all sub sector.

Table 2c Sample Cost Benefit analysis for Grades and Standards Interventions in selected commodities

Irish Potatoes

Critical Factors

- ✓ New seed stock every four years required for best product.
- ✓ No source for new seed potato in Malawi.
- ✓ Active cross border trade in low quality potatoes.
- ✓ Low quality potato currently available generates 7-40% waste.
- ✓ High quality S African seed potato causes 1-3% waste.

Target – point in Supply Chain	G&S Factor	Intervention and cost factor	Cost Savings/Price Premium	Current Market conditions
Production/ processing	1. No local source for quality seed potato. 2. Reliable supply of quality potato will attract loyal buyer-market linkages.	Requires imported or locally produced quality seed potatoes- increased cost to grower of 10% per annum if not subsidized.	Quality potato reduces processing waste by up to 35%. Cuts costs, produces higher value product for market.	No current standards for high quality potato. No informal market premium potential. Substantial market premium potential for commercial suppliers.

Table 2d Sample Cost Benefit analysis for Grades and Standards Interventions in selected commodities

Paprika

Critical Factors

- ✓ new seed required annually.
- ✓ washing, drying and grading are key post harvest steps.
- ✓ global ASTA standards are industry benchmark.
- ✓ Current high levels of loss due to lack of protected drying facilities.
- ✓ Storage and transport stages are critical; quick sale by farmers to processors is preferred.

Critical Supply Chain Point	G&S Factors	Intervention and cost factors	Cost Savings/Price Premium	Current Market conditions
Post harvest handling	Washing and drying of fruit contributes directly to quality and market access.	Most paprika is marketed by farmers unwashed, increasing processing costs and decreasing farmer prices. Open solar drying is customary increasing damage and decreasing quality. Requires smallholder to dry and grade in sheds.	Drying shed construction, maintenance, and transport to sheds increases processing costs 5%, but indoor dried, graded, and washed paprika attracts price premium of 20% to growers, 25% to exporters.	Global ASTA grades and standards. Most Malawian paprika currently attracts lower prices due to impurities/blemishes in handling.

7.1.1. Assessing Malawi's Potential Benefit from the African Growth Opportunity Act (AGOA)

According to the Malawi Bureau of Standards (MBS), formalized grades and standards exist for seventy (70) processed agricultural commodities in Malawi. Unfortunately, also according to the MBS, such standards are frequently twenty or more years old, have not been regularly updated to comply with changing international grades and standards, and spot testing of product quality is limited. Further, the MBS indicates that it faces substantial cost and communication constraints to even acquire the latest EU and US standards for agricultural exports.

The first step toward accruing export benefits to Malawi from the terms of AGOA involves assisting the testing and information capacity of the Malawi Bureau of Standards. Current, reliable and ongoing market information flows are extremely limited in all sectors of agricultural production and agro-processing, with the exception of estate produced tobacco and tea. In some respects this is the result of the severe infrastructure and communication constraints mentioned previously, but the lack of market information is also systemic. The concentration of resources in estate production since 1964, in combination with a highly regulated marketing regime in which ADMARC purchased nearly all agricultural produce from smallholders until 1994 has created a generation of producers and buyers who are quite unfamiliar with any market opportunity (or requirement) beyond local and traditional markets. Thus, sale of Malawian products to the United States, and the benefits of AGOA seem and probably are quite distant (see Box 5).

In developed economies the private sector commits resources to ensure that it has necessary information to compete successfully in targeted markets; it is proactive in seeking market access. Malawi's private sector, constrained by devaluation of the Kwacha, export bureaucracy and logistical obstacles tends to be passive and reactive to market demands. This has resulted in a constriction of export opportunities since 1990 and is exemplified in the loss of the Chalimbana groundnut export market, the flood of south African and Zimbabwean imports, the reluctance of farmers to plant new crops without market guarantees.

Box 5: Transparency and access of the US market: The case of Nali sauce

Nali is a wholly owned Malawian company whose flagship product for export is a chili hot sauce that it markets as "Africa's hottest peri-peri sauce". Established in 1974 as a small home business producing chili sauce for the local community, Nali has grown to be one of the most profitable and well-known food products companies in Malawi employing 800 people. Nali began with the owner growing his own chilies but as demand increased, Nali began sourcing chilies from other smallholder farmers. Nali chili sauce soon became the market leader in Malawi. Having reached full market penetration domestically, the company began exporting to neighboring countries in the SADC region (South Africa, Zimbabwe, Zambia, etc.).

With an established brand and reputation in the Southern African region, Nali targeted the lucrative European and US markets for its flagship chili sauce. However, strict food safety and product standards have prevented expansion into these markets. Particularly, Nali is having extreme difficulty meeting the requirements of the Food and Drug Administration (FDA) in the US market.

In 1999, a shipment of 150 cases of Nali sauce was denied entry into the US market and subsequently destroyed. The shipment was detained by FDA officials on the basis of misbranding and adulteration violations. The misbranding violation occurred because the product label did not provide nutritional information in accordance with the Food Products Labeling Act and the address of the manufacturer. This violation occurred due to an oversight by the importing agent, who was waiting for FDA approval before authorizing the printing of the US labels.

The adulteration violation resulted from the discovery of excessive insects and insect fragments, rodent and human hair, and feather barb. MBS analysts suspect the contamination occurs on the farms where the chilies are grown and dried, citing that sourcing from smallholder farmers is problematic because the drying and storage procedures are crude and tracing the source of contamination on smallholder farms is impossible.

FDA also requires another set of specifications because the Nali chili sauce is a low acid product. Communication of these G&S specifications to the MBS and Nali has been problematic, possibly due to the current poor communications infrastructure in Malawi. Because the chili sauce is a low acid product, specific stages in the processing system must be documented in order to ensure a safe finished product. Specifically, Nali must institute a system of documentation to confirm the time and temperature of processing at several stages. A complete HACCP plan is not required. However, these specifications would be part of what would be covered by a complete HACCP plan.

Nali, one of Malawi's most successful export companies, is currently excluded from the US market for a product that meets EU standards. The applicable US standards have not been successfully communicated to Nali and MBS. The implementation of proper low acid documentation is delayed while Nali concentrates on the regional and EU market.

Market linkage technical assistance to the agro processing industry in Malawi, if properly targeted, would increase market information flows, update G&S requirements in a demand-driven environment and (combined with assistance to the MBS) would increase the technical capacity to meet such global market quality requirements

8. Assess Likely Benefits to Malawi from a comprehensive Grades and Standards Initiative: Problem Statement, Recommendations and Benefit Assessment

8.1. Problem Statement:

Potential exporters in Malawi increasingly require sophisticated testing in order to enter international markets. Recent tariff liberalization within COMESA and SADC, along with the African Growth and Opportunity Act in the United States appear to open new markets for Malawi's exports. However, health and safety grades and standards will be a non-tariff barrier to exports to new markets unless G&S improvement is implemented locally.

The Malawi Bureau of Standards (MBS) is charged with responsibility to test Malawian commodities before export. In a global environment of increasingly stringent quality standards, and the increased role of private companies in G&S testing, the role of the MBS will only satisfy one stage (pre-shipment) of the testing that will be required in order to gain access to EU and US markets. Competent and timely pre-testing in Malawi would provide a sound foundation from which processors and exporters could market their product with reasonable certainty that the pre shipment quality test results will compare favorably with pre-entry testing that may be required in global markets.

Repeated anecdotal evidence indicates that consistency and timely testing is often beyond the capacity of the Malawi Bureau of Standards. The reasons appear to be varied:

1. Efficient communicating with the US FDA and the European Commission and the WTO regarding changing standards is lacking. Cost and connectivity issues impede the transfer of up-to-date import standards imposed by receiving countries. Thus, testing done in Malawi often is disregarded by importers, requiring the added costs of additional testing.
2. Current MBS staff appears to be competent, but the depth of competence and capacity is in question. Younger staff needs intensive supervision, contributing to testing delays and increased transaction costs.
3. Readily available standard samples of commodities, against which to calibrate testing equipment, are not available to the Malawi Bureau of Standards. Without standard samples, the MBS is unable to calibrate its testing equipment to current global requirements.
4. Current testing equipment for agricultural commodities is limited, permitting the establishment of only one testing line. Delays are frequent during high export periods for certain commodities, resulting in increased transaction costs and potential lost markets.

Recommendation 1.

Make a thorough assessment of the testing capacities and deficits of the Malawi Bureau of Standards with respect to the targeted agricultural commodities. Ascertain the global standards and that must be met to facilitate increased trade in the identified commodities to EU and US markets.

Assess the cost benefits to the private sector by:

- **improving MBS communications with US and EU grades and standards regulatory bodies;**
- **increasing the training and capacity of younger MBS staff with respect to the targeted commodities by the provision of technical assistance to MBS;**
- **providing standard samples to the MBS; and,**
- **providing sufficient equipment and training to open a second commodity testing line at the MBS.**

Anticipated Benefits:

- a) Integration of the Malawi Bureau of Standards with current international grades and standards for agricultural exports.
- b) Institutional strengthening of the MBS through staff training.
- c) Up-to-date standards samples allow for accurate testing equipment calibrations.
- d) Increased capacity for timely testing

8.2. Problem Statement:

Market information flows between input providers, growers, traders, consolidators, trucking and storage facilities, processors, exporters and eventual buyers are severely distorted. In part, this is typical of most developing countries and results from inadequate communication and transport infrastructure. In Malawi, those market information inhibitors are magnified by the former role of ADMARC as a once-guaranteed buyers of almost all commodities produced by small hold farmers. ADMARC then assumed the role of picking up and assembling purchased commodities at regional market points, providing transport to a central warehouse where storage was provided until ADMARC's marketing and sales staff completed agreements for eventual sale. ADMARC, as a guaranteed buyer of produce, also provided inputs to growers on credit and provided training to farmers on proper grading and handling procedures, thus ensuring desired quality, quantity and product.

ADMARC is now undergoing privatization and no longer acts as a guaranteed buyer, has reduced its extension services, and does not provide inputs. Commodity markets in Malawi are largely unconstrained. The rapid pace of market liberalization and privatization of ADMARC has left many small hold growers in the position of market-chasing with inadequate information. Thus, growers tend to plant whatever fetched high

prices in the prior year, contributing to cyclical over and undersupply and consequent extreme price variations.

Parallel to the market information distortion faced by growers, processors and exporters face similar information bottlenecks in buying necessary product for processing. Where ADMARC once supplied all raw materials for processing or export, the marketplace is more variable in both availability and quality.

With the absence of ADMARC and the 'input to market' service they provided, largely unregulated traders have assumed an important role as deal makers. Widely unappreciated by growers, it is the traders who communicate market requirements to producers and market availability to buyers. In that way traders perform a valuable role. The limitations of traders are several, however. Traders tend to know local market conditions only, deal in relatively small quantities, are less concerned with timely delivery and careful transport of commodities than may be required, and have little interest or knowledge of international grades and standards for export. While traders have an important collection, transport and aggregation role a more sophisticated system of information flow is required for expanded export.

Identified market demand information is lacking throughout the commodity supply-chain in Malawi. Grades and standards are most efficiently communicated through market demand. Similarly, grades and standards themselves serve to communicate market conditions. The consequence of a cycle of weakening G&S is profound market information distortions throughout the supply chain.

The link between increased exports and the capacity to ensure consistent G&S is undeniable. To the extent that the capacity of the MBS is limited to communicate global market G&S requirements, exporters will look to less demanding regional markets. Improving the capacity of the MBS is essential to increasing global exports.

Recommendation 2.

Building on the proven SAIBL (South African International Business Linkages) model of commercial linkages between larger buyers and smaller producers (albeit in the manufacturing sector) we recommend the following steps be taken in Phase Two:

Assess the potential benefits of establishing an independent commodity linkage broker or agent in Malawi, probably based in Blantyre, to act as a deal-making facilitator. The USAID SAIBL project in South Africa provides a relevant model. Specific functions would include: producer quality and volume assessments, input improvement requirements, processor G&S requirements for identified markets, and international market identification.

- **Consider a relationship between the Private Sector Forum (ZMM-GT) and the commodity linkage function.**
- **Assess the potential for cost sharing between donors and the private sector to support this function. (Initial interviews indicate a willingness by the private sector to assume some cost sharing).**

- **Determine the proper working relationship between the business linkage function and the relevant government of Malawi Ministries (Commerce and Industry and Agriculture).**

Anticipated Benefits:

- a) Integration of the Private Sector forum of the ZMM-GT into ongoing grades and standards applications in the context of commercial business linkages.
- b) Targeted technical assistance on a cost-sharing basis (between donors and private sector) will increase locally generated G&S initiatives.
- c) Targeting business linkages as a focus for G&S provides an incentive to government of Malawi Ministries (Commerce and Industry, Export Council and Agriculture) to include G&S as a factor in increasing export volumes.
- d) G&S is integrated as a tool in the larger issue of global market development.

8.3 Problem Statement:

The few exporters of processed agricultural products in Malawi have repeatedly had their processed goods refused access to international markets (US,EU, South Africa) on quality or SPS grounds. Often these same processors had samples from shipments tested in Malawi according to currently available G&S guidelines. Variances between local testing and testing at import points are frequently substantial, causing loss of export revenues and market reputation while adding costs for the return or disposal of the rejected goods.

Recommendation 3

Consideration should be given to providing Quality Systems assistance to the private sector in Malawi for exported processed foods. Currently the EU Commodity Fund provides partial cost sharing subsidies to companies in Malawi that undertake ISO 9000 certification. Similar cost sharing for HACCP plan development, implementation and certification and other technical assistance would help the private sector meet increasingly stringent health and safety standards and would complement previous recommendations to strengthen the testing capacity of the MBS.

Anticipated Benefits

- a) The EU assistance to companies who implement ISO 9000 has been well received. HACCP process certification will have greater impact upon agricultural exports than ISO 9000 since it is specifically designed as a food safety quality assurance system. Cost sharing for HACCP will provide the G&S foundation for increased exports.

8.3. Problem Statement:

Export from Malawi is cumbersome and time consuming. In order to process one transaction, an exporter must visit, in person, at least five different bureaus and ministries for approval and certification. The notion of creating an environment to facilitate exports is unknown. Instead, paperwork and repetitive approvals must be gained from officials in different locations and delays are frequent. It is not unusual for export approvals to take three to five days. When added to the transport time required

for Malawian exports through Nacala or Beira, a Malawian export may take as much as ten days to leave port. This compares unfavorably with the average of two days from order to shipment in South Africa. Increased transaction costs and lost markets result.

Recommendation 4.

Consideration should be given to establishing a “One Stop Export Point” in which all relevant authorities are housed. The protocol for such an export point should be developed by the relevant ministries (MIPA, MEPC, MRB, Commerce and Industry, etc) with technical assistance provided by donors.

Anticipated Benefits:

- a) Establishing a “One Stop Export Point” is a low-cost method of streamlining the approval processes required for private sector exports by reducing duplicative paperwork and the time required to travel between often uncoordinated agencies. Lower export transactions costs result.
- b) By involving the relevant ministries and agencies in the conceptualization and implementation of the proposed export point, the current bureaucratic structure can be enlisted to facilitate rather than hinder trade.

8.4. Problem Statement:

The impact of grades and standards on potential exports is not well understood or appreciated in Malawi, by either government ministries or the private sector. This lack of information contrasts with relatively sophisticated G&S understandings in Kenya and South Africa, for instance. Until the level of discourse and understanding of G&S is raised, Malawi will be at a disadvantage in seeking new global markets.

Recommendation 5

Establish a Grades and Standards Forum within the Zambia, Malawi, Mozambique Growth Triangle as a regularly scheduled opportunity for business and government officials to meet and discuss relevant G&S issues with an international G&S expert. The ZMM-GT has indicated interest in hosting such a regular meeting and G&S experts from the SADC region and beyond are easily accessed.

Anticipated Benefits:

- a) Serving both a networking and information function, a bi-monthly G&S Forum meeting would bring together business and government to raise awareness of

regional and global issues in grades and standards for export. Information flow in the supply chain will be improved.

Problem Statement

Just as awareness of the changing global G&S environment is limited in Malawi, the institutional capacity and will to engage in a comprehensive G&S initiative is constrained.

There is a critical need to “build a constituency” for improved G&S in Malawi, particularly among those government agencies involved in export.

8.5. Recommendation 6

8.6. Recommendation 6

FANARPAN (Food Agriculture and Natural Resources – Policy Analysis Network) should be called upon to extend its operations in the following areas:

- a) Conduct analysis and assist regional harmonization by developing an economic and food security assessment of the effects of current constraints to regional seed trade (regulatory frameworks).
- b) Extend the work of SADC workshops on harmonization of Seed Laws by serving as a forum to synchronize seed laws with other trade laws.
- c) Host and facilitate coordination and information exchange between members on SSASI and other seed policy initiatives.

Anticipated Benefits

The economic and food security costs that derive from what appears to be inadequate regional harmonization of seed and agricultural trade laws are largely anecdotal. Quantifying the costs of inadequate regional harmonization will provide an important tool for ongoing advocacy by FANRPAN.

8.7. Recommendation 7

Short-term international fact-finding and study opportunities to other developing countries with improving G&S regimes. Such opportunities should be made available to selected officials in the Malawi Bureau of Standards, the Ministries of Commerce and Industry and Agriculture and the Malawi Export Promotion Council.

Anticipated Benefits:

- a) Awareness of G&S initiatives in other similar exporting countries.
- b) Local appreciation of the export benefits that accrue with improved G&S.
- c) Increased government cooperation with private sector G&S needs.

APPENDIX 1: COMMODITY SUBSECTOR REVIEW

The following narrative summaries provide background information for the commodities listed in Table 1. Commodities are classified into three groups: 1) commodities with little potential for increased exports through grades and standards interventions; 2) commodities with potential for import substitution through improved grades and standards; and 3) commodities with substantial potential for increased exports through grades and standards intervention.

For each commodity with either import substitution or export potential, grades and standards issues at critical points in the supply chain are identified. Demand for improved grades and standards is explored as well as potential for price premiums and their distribution. Also, major players who can participate in a grades and standards initiative are identified.

Commodities With Little Potential for Increased Exports

Commodities with little potential for increased exports through grades and standards interventions include rice, maize, macadamia, bananas, mangoes and cabbage. Rice production is erratic and mostly consumed locally. While many interviewees cited rice as having high potential for export, there does not appear to be supporting evidence. Malawian rice is said to be preferred in the SADC region and in high demand. However, it is unclear whether consumers are willing to pay higher prices for Malawian rice. Price premiums would be necessary in order for rice to be a viable large-scale export commodity because Malawi can not compete on price with Thai rice due to high costs of production. Further research is needed to assess the demand and willingness to pay for Malawian rice in regional markets. This research activity should be undertaken by APRU and FANRPAN.

Maize production is erratic and heavily dependent on weather patterns. Since it is the basic food security crop, it will only be available in export quantities in years of extremely good harvest and thus, not a viably consistent export crop. Some grades and standards initiatives, particularly extension services on how to store maize to avoid grain borer infestation, could improve the quality and quantity of the domestic supply.

Macadamia nuts are often cited as a good alternative export crop. Due to the high fixed investments and imported inputs necessary for production as well as a competitive world market, macadamia nuts are only a suitable export crop for estates. Grades and standards are critical in the production and processing of macadamia nuts, particularly food safety and hygiene standards in processing. However, the majority of the benefits of a grades and standards initiative for macadamia nuts would be limited to the estate sector with only limited employment benefits for communities.

Bananas, mangoes and cabbages are important horticultural crops for Malawi. However, they are not identified as priority commodities because there is little potential for import substitution or exports.

Commodities With Potential for Import Substitution

Horticulture is among the fastest growing sectors in most Sub-Saharan African countries. Horticultural production as a whole has increased considerably in recent years. Much of the expansion of horticultural output has come from an increase in smallholder production under subsistence conditions. Fruits and vegetables in particular are attractive for smallholder producers because they serve a dual function as both cash and food crops (Kachule et al.).

However, the industry does not produce the quality nor does it have the infrastructure to consider exporting on a large scale. Malawi currently imports a large quantity of horticultural products from its neighbors, particularly tomatoes, apples and oranges from Zimbabwe and South Africa. Thus, the best strategy for horticulture at this time is one of import substitution, which will save vitally important foreign exchange. In order to compete with imports from Zimbabwe and South Africa, both the quantity and quality of products produced must be improved as well as addressing the issue of highly seasonal production.

1. Tomato

Tomatoes are popular and consumed by most of the population. The export potential for tomatoes is low. However, there is potential for import substitution. Grades and standards issues at critical points in the supply chain are outlined in the following sections.

1.1. Inputs

The quality of seeds available on the market is generally low. Good quality tomato seeds as well as other vegetable seeds are not produced domestically and must be imported. There are two main seed companies in Malawi, National Seed Company of Malawi and Pannar Seed Company. Horticultural seeds are seen as a minor crop with low sales volumes and thus, not a major focus of either company. National Seed stopped dealing in any type of horticultural seed in 1996 because it was not considered as their main trade commodity. Pannar Seed imports horticultural seed from South Africa. The viability of seed is also an issue with some of the imported seeds.

Pesticide quality is another critical issue in Malawi. A recent study found that 95 percent of products sampled from the market has an amount of active ingredients below standards (Deppe). This means that when a producer follows the recommendations for using the product, she will not get the desired results because the active ingredient is too low. Interviewees have also noted that expired pesticide and fertilizer products are being dumped in Malawi from Zimbabwe and South Africa.

1.2. Production and handling

Pests and diseases are particularly problematic in the rainy season. Thus, the bulk of tomato production occurs during the dry winter months. This causes surplus conditions during certain times of the year, and shortages during other times. During the surplus times there are extremely high levels of waste.

This seasonality is the greatest production weakness and contributes to the large influx of imports. With support from GTZ several smallholder farmers have invested in small greenhouses for tomato production. Greenhouses provide a protected environment for tomatoes. They are producing superior quality tomatoes and are able to take advantage of high prices during periods of shortages, which is also the time when there are imports. Basic greenhouses can be constructed using imported plastic from South Africa and locally available materials. One tomato greenhouse project spent around 100,000 Kwacha on material including irrigation. It is expected this cost will be recovered in less than one year (van Rees Vellinga).

1.3. Storage and Transport

Poor storage and transport along with large volumes of seasonal production lead to high levels of post-harvest loss. Lack of proper packaging and handling procedures and packaging materials as well as storage facilities dramatically decrease the shelf life of already highly perishable products. This is the one of the major factors contributing to domestic produce being noncompetitive on a quality basis with imported produce.

Poor road conditions make timely and efficient product delivery impossible. It also contributes to high vehicle maintenance costs which increases the cost of transport services.

1.4. Processing

There is currently no processing capacity for tomatoes. The closing of the Mulanje canning factory left no fruit and vegetable processing capacity in Malawi. Unless the seasonality of tomato production can be smoothed and sufficient quantities supplied throughout the year, there is no incentive for investing in processing capacity.

Attempting to learn how to deal with the issue of seasonality and processing, members of HoDoM⁸ have been studying a tomato processing facility in Zambia. However, they have not discovered any valuable insights. The processor is struggling to get the volume it needs throughout year and is having problems budgeting production based on input supply from smallholders.

⁸ The Horticulture Development Organization of Malawi (HoDoM) is a newly formed organization consisting of both large and small horticultural producers. "Smoothing" out the cyclical nature of production is one its goals. Addressing seasonality is one the main issues HoDoM faces in meeting its goal to increase the production and marketing of high quality horticultural products from Malawi. HoDoM is currently supported by GTZ.

1.5. Marketing

The domestic market for tomatoes, as well as other fruits and vegetables, basically consists of three channels, supermarkets, food service, and local markets. Supermarkets rely heavily on imports from Zimbabwe and South Africa because imported produce is usually well packed and of superior quality in terms of size and uniform ripening. An important aspect of imported produce packaging is the use of standard weights, which is necessary for pricing. Imported produce dominates the produce section of the PTC and Kandodo supermarkets. However, the supermarkets do source some products domestically, mainly from commercial farmers using formal contracts with specific price, quantity and quality. Supermarkets are willing to deal with smallholders in some instances as long as they have their own transport and can meet minimum quantities and have access the year round supply. A recent survey reported seasonality and poor quality as the major problems with domestic horticultural products (Kachule).

The food service sector, i.e. hotels, restaurants, hospitals, schools and government cafeterias, source products though contracting with commercial farmers. As with supermarkets, food service providers deal with smallholders only if they have their own transport and can meet minimum quantities and have access the year round supply. On average prices offered in by food service providers and supermarkets are slightly higher (with a higher premium price for good quality produce) and less volatile

because the contracts and volumes per transaction are higher than those in the local markets (Kachule). HoDoM is working to establish a wholesale market to supply food service buyers with key fruits and vegetables for 12 months a year.

Local markets are governed by spot market transactions. Customers are low to middle income households. Thus, the range of products is narrow and the premium on quality produce is lower than that in supermarkets and food service. Often, the only quality factor used to grade and sort produce is size. In some markets, standard weights and measures are used for certain products such as potatoes and tomatoes. However, they are often priced by the pile.

Produce found in the local market is sourced from smallholder farmers. Farmers who have access to transport and/or the cash to organize transport, sell directly to the market vendors. However, much of the produce is brought to market by traders who hire transport and go to the rural areas and get the produce.

Grading is not an important factor for smallholder farmers in tomato marketing. A recent survey reports that only about 38% of the middlemen and traders indicated that they buy graded fruits and vegetables from smallholder farmers. About 36% of the producers interviewed indicated they do not grade or pack their products. Farmers cited several reasons for not grading or packing including lack of packing materials (28.6%), lack of proper packing and grading techniques (33%) and no significant price incentive (33%) (Kachule).

1.6. Demand for improved grades and standards

Significant demand exists for the development of production timing standards, in the form of crop calendars, to be used to organize the temporal aspects of production and thus, help to smooth out the cyclical nature of tomato production. Through the support of the Malawi-German Project for the promotion of Horticulture (GTZ-PH), HoDoM is working with the Agricultural Research Policy Unit (APRU) at Bunda College of Agriculture on a project to "structurize" vegetable production to address this issue of seasonality. The project is studying what is needed to bring tomatoes and other important crops to market throughout the year including the use of greenhouse production.

1.7. Potential for price premiums for improved grades and standards

There is a potential for a price premium for high quality tomatoes to supply the supermarkets and food service sectors. Also, off-season produced tomatoes can command higher prices due to tight supplies.

1.8. Distribution of price premiums for improved grades and standards

Smallholder farmers and traders will benefit from the price premiums. However, in order for the premium to reach the farmer, market linkages with customers must be made perhaps in the form of contracting.

1.9. Major player(s) to assist in grades and standards improvements

ICRISAT and NGOs involved in seed multiplication will play an important role in producing and distributing good quality seeds particularly as the seed industry develops. However, viable seed companies must emerge to fill this market void.

HoDoM and GTZ are the major players currently attempting to address the seasonality of tomato production and are thus the logical potential "champions" for tomato grades and standards. Current horticultural extension services of the Ministry of Agriculture are poor. They are still too focused on production practices and do not have the staffing or institutional knowledge and capacity to facilitate the necessary market linkages for the development of the horticultural sector.

2. Onion

The onion is a popular and widely grown vegetable in Malawi, ranking third after tomatoes and cabbage. Onions are one of the most important food seasonings in the Malawian diet and thus, demand is fairly constant throughout the year. However, onion production is seasonal and Malawian production does not meet demand. Grades and standards issues at critical points in the supply chain are discussed in the following sections

2.1. Inputs

Good quality seeds are necessary to produce high quality onions. As with other horticultural crops, onion seed is not produced domestically and must be imported. Currently, most farmers purchase Pannar seeds.

2.2. Production and handling

Onions can grow throughout most of the country. Most of the production is concentrated in the plateau and highland areas. However, onion production is also highly seasonal causing large fluctuations in price during times of overproduction and underproduction. The onion growth season ranges from March to November. The vegetative growth stage must be completed during the cool months of April to July. Bulbing occurs as the temperature warms in August and September. Onions mature during the high temperatures of September and October and are ready for harvesting in November (Chongwe).

Onion production requires irrigation during the dry season.

The market preference in Malawi is for medium size and well-matured straw yellow or red colored bulbs with reasonable pungency and storage quality. Onion variety choice should be made considering the important factors of market preference for bulb size and color, storage, and yield.

Most onions in Malawi are grown from seedling produced in seedbeds because it is a low cost method in both seed and management. However, alternative growing methods, including set onion production, could be used to offset the seasonality of onion production. Sets are small stored onion seedling produced out of season, dried and stored. The sets are then replanted in early March. Onions grown from sets mature earlier. With set onion technology, onions mature during the April to June period when the crop is most scarce and market prices are highest (Chongwe).

Production practices greatly affect the quality of the onion. First, over-fertilization, including nitrogen fertilizer and heavy manuring, and over-watering in the early stages delays maturity and produces bulbs with thick necks. Excessive use of nitrogen fertilizer can also cause soft bulbs, which are difficult to store. Second, early sowing and big bulbs result in an increased proportion of split bulbs. Third, there is an inverse relationship between plant density and bulb size. As plant density increases, bulb size decreases. Pests and diseases, particularly thrips and purple batch, can affect the quality of the onions. These can be controlled through the use of pesticides and fungicides and through good agricultural practices (crop rotation and field hygiene).

Premature harvesting reduces yield and storage quality as well as causing secondary infection by rot-causing organisms. After harvest, onions should be cured in the sun or a well-aired shed for 2 to 3 days.

Farmers often do not grade their onions. However, grading can help to get higher prices. Grading should be done according to size, grouping onions as small,

medium and large. Also, packaging in 10 kilogram sacks is preferable and can help to bring a higher price.

2.3. Storage and Transport

Onions can be stored for up to 3 to 5 months depending on the variety. The most effective method of storage is to hang onions in bunches from the roof of a storage shed. The storage shed should be cool and dark with a good roof that keeps out the sun and rain (Msungu).

Onions are one of the more durable horticultural crops, which makes transport easier than with other highly perishable crops. However, onions must be well sorted and packed to avoid disease transmission and rotting.

2.4. Processing

There is currently no capacity for processing onions or using onions in a processed product.

2.5. Marketing

The seasonality of onion production causes large variations in price at different times of the year. Prices are lowest during harvest time in October and November. They gradually begin to climb as onions become scarcer in the months of January and February. Prices climb higher in March and April and reach the highest points in May and June. Prices fall in July and August as early maturing varieties come to market and as supply increases due to early harvesting (Chongwe).

The market preference in Malawi is for a medium to large size and well-matured straw yellow or red colored bulbs with reasonable pungency and storage quality. Onions from Zimbabwe are often preferred in the market because they are a larger size than Malawian onions.

Onions are sold through a similar marketing system as tomatoes. This includes rural and urban street vendors as well as supermarkets.

2.6. Demand for improved grades and standards

Significant demand exists for the development of production timing standards, in the form of crop calendars, to be used to organize the temporal aspects of production and thus, help to smooth out the cyclical nature of onion production.

Through the support of the Malawi-German Project for the promotion of Horticulture (GTZ-PH),

HoDoM is working with the Agricultural Research Policy Unit (APRU) at Bunda College of Agriculture on a project to "structure" vegetable production to

address this issue of seasonality. Variety selection, production methods such as set production and improved storage conditions are areas of focus for this research and extension effort.

Moreover, simple education, grading by size and the use of standard weights and measures can improve the prices received by farmers.

2.7. Potential for price premiums for improved grades and standards

There is a potential for a price premium for high quality onions to supply the supermarkets and food service sectors. Also, off-season produced onions, either from set production or storage, can command higher prices due to tight supplies.

2.8. Distribution of price premiums for improved grades and standards

Smallholder farmers and traders will benefit from the price premiums. However, in order for the premium to reach the farmer, market linkages with customers must be made perhaps in the form of contracting.

2.9. Major player(s) to assist in grades and standards improvement

HoDoM and GTZ are the major players currently attempting to address the seasonality of onion production. Agricultural extension agents are needed to disseminate information to farmers on the economic benefits of grading and to educate them on proper grading procedures. The horticultural officers are currently greatly understaffed and often do not have the necessary information. They usually can only provide advice on production practices but not on market preferences and how to meet them.

3. Citrus

Citrus is a popular fruit in the Malawian domestic market. At present there is a domestic citrus industry. However, it can not meet the market demand in quantity or quality and a significant amount of citrus products are imported from South Africa and Zimbabwe. Also, the trees in the main citrus area in Mwanza are mostly over 40 years old and need replacing. Thus, there is high potential for import substitution with increased domestic citrus production. Grades and standards will play a critical role in achieving this goal. Grades and standards issues at critical points in the supply chain are outlined in the following sections.

3.1. Inputs

Good quality seedlings of grafted varieties are the most critical input for increased citrus production. Grafted citrus trees will start producing in the 3rd to 4th year after

planting as compared to 7 or 8 years for local varieties. When choosing a variety, it is important for farmers not only to consider the ecological conditions of the farm but also consumer preferences. Urban consumers prefer the flavor of the

sweet seedless Navel oranges imported from South Africa (Baumann, 2000b). GTZ recommends Rustenburg Navel, Midnight Valencia and Valencia Late varieties for oranges and Ellendale, Minneola and Jules for tangerines.

Most of the fruit orchards in Malawi have been established from seed using low yielding and poor quality local varieties. Technologies such as budding and grafting

with improved varieties have not been used in the past and are now only available in certain areas. Through donor support, several fruit seedling grafting and multiplication projects have been established. These projects are now beginning to deliver some seedlings to farmers.

At present nurseries in Malawi cannot provide large quantities of budded trees and there is no registration or certification scheme in place, which would give minimum guarantees for trees. GTZ is currently working on minimum standards for citrus seedling. Citrus seedlings are currently being produced by CHIKAFRUNA Association in Karonga, Seed and Nursery Services in Mzuzu, Bvumbwe Research Station, and ZIPATSO Association in Mwanza. All of these nurseries are new and thus, can only produce a limited number of grafted seedlings.

If commercial yields are desired then citrus trees require sufficient water, fertilizer and manure (Baumann, 2000a).

3.2. Production and handling

Specific production knowledge regarding training and pruning, soil management, irrigation, fertilization, crop protection and harvesting is necessary to produce good quality citrus products. Specific production factors that can affect the quality of the fruit are as follows.

- Irrigation generally increases yield by increasing fruit size. Irrigation can also be used to lengthen the orange season. At Freedom Gardens irrigation is used to force a second flower during the year and hence producing a second out-of-season crop.
- Low potassium content will affect fruit size.
- Pests, diseases and disorders are prominent features of citrus crops and can greatly affect quality. Some pest and diseases attack only the tree but several affect the quality of the fruit. All of these can be controlled with good agricultural practices and proper use of pesticides and fungicides. Citrus thrips cause scar patterns on fruit but the damage is only cosmetic. Citrus
-
- bud mites can cause malformation of fruits. Citrus rust mites cause silvering of the fruit skin that later turns to purple and then brown. The market value is decreased although the fruits taste sweeter. Citrus greening disease causes fruits to be small, hard and of sour taste. Fruit and leaf spot causes fruit to have a yellow halo (Baumann, 2000a).

- Harvest timing is important to get the best quality crop. Sugar and juice content increase with fruit maturity. Early harvest results in inferior fruit qualities. Fruits should be picked with utmost care and also handled gently in order not to damage or bruise them. Damaged fruits are very susceptible to fruit rots caused by fungi.

3.3. Storage and Transport

Damaged fruits are very susceptible to fruit rots caused by fungi. These fruits may infect other fruits during transport in the basket or piles so that considerable losses may occur.

Citrus fruits can be maintained in good quality for up the three months after harvest when treated, waxed and stored in a cold room. However, lack of proper packaging

and handling procedures and materials as well as storage facilities dramatically decrease the shelf life of the citrus products. This is the one of the major factors

contributing to domestic produce being noncompetitive on a quality basis with imported produce even during the citrus season.

Poor road conditions make timely and efficient product delivery impossible. It also contributes to high vehicle maintenance costs which increases the cost of transport services.

3.4. Processing

Citrus juice production capacity does not currently exist. Production capacity is not sufficient to support a processing industry as well as the fresh market. Investment in citrus processing is not feasible in the short-run due to these production constraints and the seasonality of production.

Fruit juice producers include Malawi Dairy Industries, Dairyboard Malawi, Natures Gift and Sun Crescent Creameries. They rely on imported fruit juice concentrates to make their products.

3.5. Marketing

The domestic market structure for citrus products is similar to the structure for tomatoes described above section. Seasonality of production causes surpluses and shortages of citrus in the market. Because most citrus currently grown in Malawi is not irrigated, the bulk of the crop comes to market in June and July causing very low prices for farmers and a great deal of waste. Import substitution can be achieved through the increased use of improved grafted varieties, irrigation and proper storage.

3.6. Demand for improved grades and standards.

Significant demand exists for improved variety grafted seedlings. The quality of these varieties will help farmers compete with imported products. The use of grafted varieties, irrigation and proper storage will achieve the goal of import substitution.

3.7. Potential for price premiums for improved grades and standards

There is a potential for a price premium for high quality citrus products to supply the supermarkets and food service sectors. Also, off-season produced oranges can command higher prices due to tight supplies.

3.8. Distribution of price premiums for improved grades and standards

Smallholder farmers and traders will benefit from the price premiums. However, in order for the premium to reach the farmer, market linkages with customers must be made perhaps in the form of contracting.

3.9. Major player(s) to assist in grades and standards improvements

The seedling nurseries and NGOs who are currently assisting them are important players. GTZ is providing good technical advice on production practices and variety

selection. As with other horticultural crops, extension officers are currently greatly understaffed and often do not have the necessary information. They usually can only

provide advice on production practices but not on market preferences and how to meet them.

HoDoM and GTZ are the major players currently attempting to address the seasonality of citrus production.

4. Mushrooms

Grades and standards issues at critical points in the supply chain are discussed in the following sections.

4.1. Inputs

Quality spores are the critical input for mushroom production. Currently spores are being produced and distributed through NGOs. There are no certification or quality standards for spores.

Capital investment is needed for spores and a mushroom growing house.

4.2. Production and handling

Mushroom production requires very specific technical knowledge. NGOs are currently training individuals and groups on the technical aspects of mushroom production.

Proper grading and packing will be necessary to penetrate the food service market and gain entry into supermarkets.

4.3. Storage and transportation

While mushrooms are more durable than some of the other horticultural crops, they are perishable and must be handled in a timely manner.

4.4. Processing

There is currently no processing capacity in Malawi. Mushroom processing, i.e., canning, will only be viable as a side activity for a broader based fruit and vegetable processor. However, seasonality of production and capacity issues have prevented the development of any fruit and vegetable processors.

4.5. Marketing

Locally produced mushrooms will have to compete with imports from South Africa in terms of quality and packing and thus, an improved system of grades and standards will be necessary.

4.6. Demand for improved grades and standards

Demand exists for the creation and dissemination of standards for proper production practices both from farmers and potential end-users.

4.7. Potential for price premiums for improved grades and standards

There is potential for a price premium for high quality mushrooms to supply supermarkets and the food service sector.

4.8. Distribution of price premiums for improved grades and standards

Farmers who can make the necessary investments in capital equipment and management skills will benefit from the price premiums.

4.9. Major player(s) to assist in grades and standards improvements

HoDoM and GTZ are the major players currently working in the horticultural sector. Agricultural extension agents are needed to disseminate information to farmers on the economic benefits of grading and to educate them on proper grading procedures. The horticultural officers are currently greatly understaffed and often do not have the necessary information. They usually can only provide

advice on production practices but not on market preferences and how to meet them.

Commodities With Substantial Potential for Increased Exports

1. Cassava

Cassava is the staple food crop for 30 percent of the Malawi's population, particularly for those households along the Lake Shore Districts of Nkhata Bay, Nkhota-Kota, Rumphu and Karonga in the northern region (Minde, et.al. 1997). Cassava is grown in other parts of Malawi as a complement to maize and for use during critical food shortage period (between October and March). Recently cassava has emerged as an alternate cash crop, with one recent study showing the gross margin from cassava is four to five times that for maize (Benesi et. al., 1995). There appears to be potential for increased commercial application of cassava as a starch substitute in textile processing, adhesives, etc. Grades and standards issues at critical points in the supply chain are outlined in the following sections.

1.1. Inputs

Unlike other cereal crops, cassava does not require chemical fertilizers, can still grow well under serious moisture stress without serious deterioration of the tubers and can grow well in marginal soils without a significant drop in yields.

The major factor affecting increased production and quality of cassava is the scarcity of planting materials. Local cassava varieties are small in size (often preferred for ease of transport to markets) and some varieties contain high hydrogen cyanide (HCN) content in roots and leaves of the local cultivars. The Southern Africa Root Crops Research Network (SARRNET) has implemented various initiatives aimed at promoting seed multiplication and distribution of new cassava varieties. Since 1994, cassava production has increased by more than 500 percent as a result of efforts by government and SAARNET to replace low yielding local cultivars.

1.2. Production and handling

Smallholder farmers grow cassava on small plots in mixed stand with other food crops such as cow peas, maize, sweet potato, particularly among households in the

Southern Region where land is a major production constraint. Some farmers grow cassava as a border crop (Minde, et. al., 1997). Cassava production and quality is

affected by diseases particularly cassava mosaic virus (CMV), cassava mealybug and cassava green mite.

Poor post harvest handling of cassava is largely responsible for loss in quality in transit. Quick drying under controlled conditions reduces HCN levels significantly. Technology development in post-harvest processing that will facilitate quick drying of cassava without compromising on quality would assist farmers to produce dried cassava of consistent quality for food and industrial uses.

1.3. Storage and transportation

1.4. Processing

Currently, most farmers use indigenous methods for processing cassava to reduce HCN levels. Post harvest processing is critical to ensure that processed cassava meets international standards for HCN. Most of the local varieties have high hydrogen cyanide levels that are higher than the internationally set standards.

Effective processing technology for removal of cyanogens in cassava varieties with high cyanogens levels exist for preparation of cassava chips for animal feeding. Studies have shown that total cyanogen levels of less than 100 mg HCN equivalent per kg of dry cassava for inclusion in balanced compound animal feed is acceptable in intensive livestock production systems (Bokanga *et al*, 1994). This offers an opportunity for increased utilization of cassava in the livestock industry and for the export market as well as for feed manufacture.

High value agro-processing potential for cassava exists, particularly as a partial wheat substitute in confectionary items and for intermediate inputs such as starch and glucose. However, lack of quality standards will likely impede the adoption of such products.

Due to the high cost of imported wheat for textile and adhesive production, several Malawian enterprises are experimenting with mixing cassava flour and/or starch with wheat for industrial purposes. RAIPLY (furniture), David Whitehead and Sons

(textiles) and Universal Industries (confectionary products) are using cassava flour and starch in their production. Issues of production quality and consistent supply will become more significant in the supply chain as industrial uses of cassava expand.

1.5. Marketing

Domestic Market. Demand for cassava in the domestic market can be classified into two categories: food security and industrial uses. As a food security crop, cassava is consumed on the farm by the farm family. It is also sold as a commercial crop to traders who then sell the cassava to vendors in the villages and cities. Traders prefer smaller sized cassava because it is easier to transport and also a more affordable quantity for consumers.

Industries purchase cassava for industrial uses directly from the farmers, from traders, and from agricultural commodity trading firms. The product is purchased either in raw form (dried chips) or processed into flour or starch. There are no standards for processed cassava products. Firms who are attempting to utilize

cassava starch and flour are not sure about what specifications they should ask for from their suppliers. There is a communication and information void about standards and specifications, which is already leading to some dissatisfaction and potential discontinuation of cassava products as inputs.

Regional and Global Exports. The development of cassava as an export crop hinges on identifying processing activities that will add value to cassava. There is potential to export different brands of cassava glue and starch formulations as final products in the SADC region and on international markets.

There appears to be an unmet demand for cassava in Portugal and southern Europe. Further study should quantify this demand, and assess the capacity of Malawi to compete successfully with other suppliers. The cost of export logistics may mean that cassava is best used as a domestic and regional substitute for other wheat based products.

Malawi's exports face stringent quality and standard specifications that are difficult to attain given the current level of technology. In the SADC region, the generally accepted level of cyanogen is 300 mg HCN equivalent per kg dry weight, which is 30 times higher than the 10 mg HCN equivalent per kg dry weight defined by Codex as a safe level for cassava products (Codex Alimentarius Commission, 1988). Most cassava varieties grown in Malawi cannot meet the FAO food safety standard. Even with increased investment in plant breeding or post harvest technologies, such minimum level cannot be attained. As such, quality standards may hinder increased cassava exports as edible products.

Cassava is also highly susceptible to microbial contamination due to poor handling, humid climate and lack of proper drying. The long transit period to move the commodities to the markets may result in building up microbial contamination.

1.6. Demand for improved grades and standards

There is significant demand for improved grades and standards for cassava, particularly for industrial uses. However, the lack of experience in using cassava

products places both buyers and sellers in a position without adequate information. Suppliers of cassava flour complained that buyers did not provide specifications, while buyer complained the cassava flour was of inadequate quality. There is obviously a gap in communication of requirements with respect to grades and standards.

Improvements in grades and standards for industrial uses can have spillover effects to improve cassava quality for food security consumption.

1.7. Potential for price premiums for improved grades and standards

There is potential for price premiums for high quality processed cassava starch and cassava flour for industrial use. However, technical assistance is needed for deal negotiations and quality specifications due to the inexperience of both suppliers and buyers in cassava processing.

1.8. Distribution of price premiums for improved grades and standards

Cassava processors will be the primary beneficiaries of price premiums. Smallholder farmers and traders will benefit as well. However, in order for part of the price premium to reach the farmer, market linkages with customers must be made.

1.9. Major player(s) to assist improved grades and standards

The need to re-orient smallholder farmers to produce cassava for commercial purposes requires adequate market knowledge throughout the supply-chain. Currently most farmers produce, handle and process cassava traditionally which may introduce G&S weakness and reduce the commercial applications of cassava. Associations such as SARRNET and NASFAM will play an important market linkage and information transfer role.

The research community, particularly the University of Malawi and SARRNET, is also key to identifying processes that would lead into increased diversification of cassava usage in packaging and food processing. The role of government would be to support research initiatives that would lead to expanded utilization of cassava through deliberate policy on G&S and capacity building/strengthening of G&S institutions.

2. Cut Flowers

Successful development of floriculture, particularly roses, in the neighboring countries of Zimbabwe and Zambia has prompted interests in cut flowers as an export cash crop alternative. However, competition in the lucrative European markets is fierce both in

terms of quality and quantity. While exports to Europe from Africa continue to grow at an increasing rate, demand growth has slowed over the recent years and is now growing at a decreasing rate. Prices for African roses have decreased in recent years (Malter et al.). This became quiet evident to observers of the Malawian market with the closure of Lingadzi Farm Limited. However, there is moderate short-run export potential for Malawian roses in regional markets and perhaps European markets in the long-run. Grades and standards issues at critical points in the supply chain are identified in the following sections.

2.1. Inputs

Inputs are critical to produce good quality roses. The most crucial element is obviously the rose bush itself. Maravi Flowers has recently been licensed to produce improved rose variety seedlings (root stock) for a Dutch company. This is an obvious advantage for rose production expansion in Malawi because the seedlings do not have to be imported from Europe or South Africa. Also, Maravi provides transplanting and technical advice.

Commercial inputs, such as pesticides and fertilizer, are absolutely necessary.

2.2. Production and handling

Rose production requires a significant capital investment in greenhouse facilities. Flower growing for export is not for smallholder farmers. The market is favoring

bigger operations. Anything smaller than six hectares is of doubtful commercial viability. A rose project of six hectares requires an investment of between one to two million US dollars (Sinnige).

The most problematic pests and diseases are the red spider mite and white mildew. Insecticides and fungicides must be used on a regular basis and in rotation to control these pests and diseases and avoid resistance.

Harvesting at the correct time is critical for the shelf life of the rose. Post-harvest handling is also of critical importance. A grading shed and cold room are needed on farm for proper handling and grading. Roses are graded according to stem length. Grades 1 (stem length of 70 centimeters and above) and 2 are exported. Grades 3 and 4 are used in the local market.

2.3. Storage and transport

Roses are highly perishable products. A cold chain must be maintained during storage and transport. Efficient transportation is crucial. For exports to Europe, the roses should arrive within three days of harvest.

2.4. Marketing

Domestic Marketing. There is a domestic market for grade 3 and 4 roses. For example, the Garden Corner, a florist in Blantyre, uses 2000 to 3000 flowers per week. The demand for grade 3 and 4 roses in Lilongwe is 10,000 stems per week. Malawian florists use a combination of imported flowers and domestically produced flowers. Thus, increased domestic production could provide import substitution.

Regional Exports. There is opportunity for increased regional exports of roses. The Blantyre airport has cold storage facilities for up to 100 boxes. The most lucrative market in the SADC region is South Africa. Information obtained in the interviews indicates that Maravi Flowers has more orders from South Africa than it can fill. The South African market is attractive for new exporters for several reasons. First, the quality standards are not as high as in Europe, which is advantageous for someone who is still learning the business. Also, the availability of airfreight to South Africa from Lilongwe and Blantyre is not as problematic as for European destinations, although it is still an issue where improvement is needed.

Global Exports. Currently only Maravi Flowers Limited exports to the European market through the Dutch auctions. In the short-term, expansion into this market is not feasible for new exporters due to high air freight costs and limited capacity, strict quality standards, stiff competition and declining prices. The European market may become a feasible target if a core group of growers emerges from increased regional trade. With lessons learned from regional exporting, they can possibly overcome some of these issues.

2.5. Demand for improved grades and standards

In order to export roses, export quality must be produced. Since exporters are vertically integrated producers, they must control quality within the firm utilizing grades and standards. Thus, there is little demand for improved grades and standards *per se* since the quality control function is within the firm. There is little apparent demand for improved grades and standards in the domestic market for

roses. It utilizes the export grading system and provides a less discriminating market where grade 3 and 4 roses can be sold. Thus, there is no demand for changes in the current grades and standards systems, which is dictated by the import markets.

However, there is demand for improvements in inputs, production systems and infrastructure that will help firms to meet the export standards.

2.6. Potential for price premiums for improved grades and standards

The export market for roses is competitive. Standards must be met in order to gain access to the market. Currently, the pricing structure pays according to grade with grade 1 and 2 being export quality grade. There is potential to capture

the benefits of the grade 1 price premium by striving to produce higher quality and thus, producing more grade 1.

2.7. Distribution of price premiums for improved grades and standards

The integrated rose producer/exporters capture most of the benefits of the price premium. However, benefits accrue to the community from profitable, growing

firms through increased employment and technical expertise. Also, successful firms serve as a model for other producer/exporters.

2.8. Major players(s) to assist in grades and standards improvement

The most capable player to assist in meeting export standards is Maravi Flowers because it is currently the only exporter. It is in their best interest to encourage more growth in the industry because a critical core number of exporters is needed in order to produce the capacity needed to address some of the infrastructure problems, namely air freight and cold storage. HoDoM can also serve a facilitating role in linking producers who are interested in the export market with this successful exporter.

3. Groundnuts

Groundnuts are widely grown by smallholder farmers as a cash crop and as an alternative food security crop. It provides approximately 25 percent of the agriculture income in Malawi, especially among women farmers. The seed contains approximately 25 percent digestible protein and 50 percent edible oil. Groundnuts also contain essential amino acids such as cystine and vitamins such as thiamin, riboflavin and niacin. As such, groundnuts play a very significant role in family health and nutrition particularly for women and children. Grades and standards issues at critical points in the supply chain are identified in the following sections.

3.1. Inputs

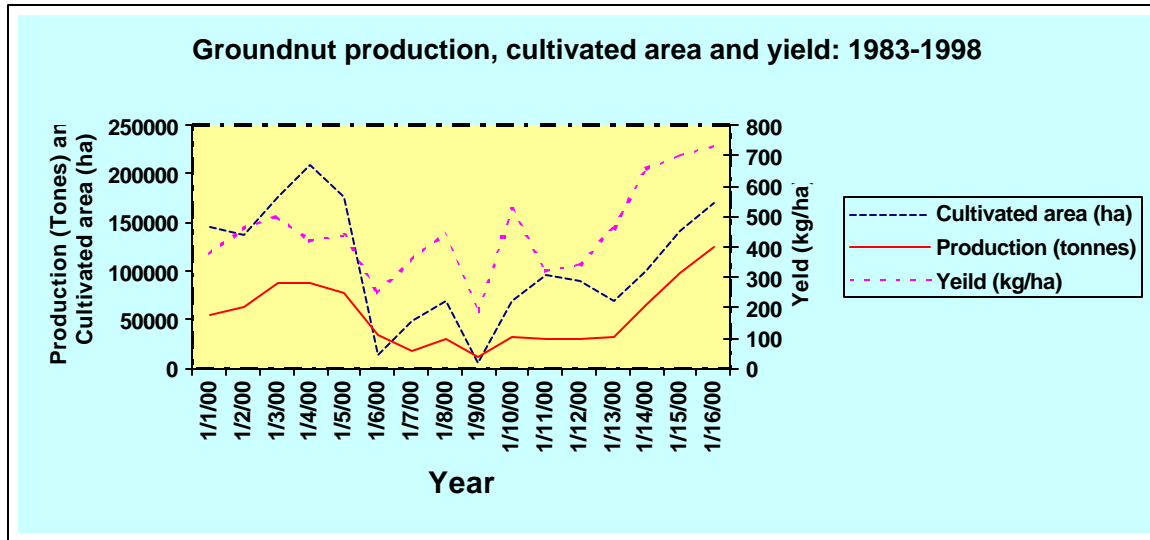
Groundnuts are incorporated in the rotation programs to restore soil fertility as it fixes nitrogen in the soil. As such, groundnuts do not require application of chemical fertilizers.

Until 1987/88 following structural adjustment reforms, ADMARC was the sole trader in groundnuts where about 3000 metric tons were set aside as seed for the following year. ADMARC played the role of a buyer and seller of seed. With the liberalization of the agricultural markets, ADMARC no longer keeps groundnut seed stock. The collapse of seed markets for groundnuts has increased scarcity of groundnut seed. After harvest, good quality nuts are reserved as seed for the following season. Since farmers have continued to recycle their seeds year after year, the quality of the nuts has deteriorated. There is a significant need for improved seed inputs.

3.2. Production and handling

From 1996, the production, yield per hectare and total cultivated land has generally been increasing. This may have been due to the campaign by NGOs such as Action Aid and WVI on the promotion of variety CG7. The popular Chalimbana nuts have been replaced by CG7. However CG7 has purple color and is not preferred by some processors. Recently, a new variety with similar characteristics to CG7 but with the favored pink color has been developed by

ICRISAT. Once this seed is widely grown by farmers, there is a potential to increased production of a quality groundnut with the attributes demanded by importing countries.



Post-harvest handling of the nuts is critical in reducing the development of aflatoxin in the nuts. Many small producers do not have proper storage facilities and as a result, much of the production is at risk of mold formation.

3.3. Storage and Transport

Storage of groundnuts is critical for ensuring the nuts are not in contact with moisture and consequent mold damage. Most smallholder farmers store unshelled groundnuts in sacks until they are shelled for sale. Due to liberalization, commercial buyers open temporary markets in groundnuts producing areas, such as Mchinji District, where they buy ungraded shelled nuts.

3.4. Processing

At this time, industrial processing of groundnuts for the export market is limited due to low production levels and poor quality. For example, only 20 percent of

the nuts bought by Tambala Products is of superior quality used for processing export quality nuts called “Tambala Kings.” Improved inputs and increased knowledge of proper handling will increase product quality.

3.5. Marketing

Domestic Markets. The cash value of groundnuts is generally better than for most cereal crops. Most farmers grow groundnuts mainly for sale in the domestic

markets. However, there are no systematic marketing channels for groundnuts from small producers since the closure of some of ADMARC facilities in remote areas where groundnut production is high. With liberalization, private traders provide a seasonal marketing channel in producing areas. The absence of the security of the formalized ADMARC system has contributed to low production as farmers are not guaranteed a market for their produce and do not know how to operate in a free market environment.

Regional Exports. According to ADMARC and Rab Processors Limited, despite quality restrictions on groundnuts, there is still high and unsatisfied demand for Malawian groundnuts in the region. The main export markets for Malawi have been South Africa and Zimbabwe. South Africa imports about 3,000 to 4,000 Metric tons of the large seeded confectionery nuts (Chalimbana), with total South African demand between 40,000 and 50,000 tons of groundnuts per year (Phiri 1998).

Global Exports. Until 1980 groundnuts were the third largest export crop for Malawi. The main export market was Europe, particularly the United Kingdom. Gradually this market was lost due to two G&S factors: high aflatoxin levels and decreasing quality and unpopular nut varieties as mentioned.

Private sector traders and processors believe that Malawi's position as a major exporter of quality nuts in the regional and international markets can be restored if deliberate measures are taken by government and the private sector to implement promotional programs of groundnuts. The reintroduction of new varieties that are similar in size, color and texture to Chalimbana will bring Malawi back on the world map as a groundnut exporter. Market opportunities appear to be substantial in the COMESA markets and in the EU. Improvement in production, processing and handling is required to meet increased G&S requirement to access those markets (see Box 2).

3.6. Demand for improved grades and standards

Nearly all users, buyers and traders of groundnuts who were interviewed conceded that groundnut quality has deteriorated substantially since 1985. Before liberalization, ADMARC provided advisory services to farmers on grading where superior grades were highly priced compared to lower grade nuts. Due to scarcity of nuts and increased number of traders, farmers no longer sell graded groundnuts.

However, exporters expressed concern over the under-supply of export quality nuts. The development of the "new Chalimbana" variety by ICRISAT presents an opportunity for Malawi to reclaim its status as a consistent exporter of groundnuts.

3.7. Potential for price premiums for improved grades and standards

Interviewees persistently commented that Malawian groundnuts are preferred over the Chinese and Argentine groundnuts on the world market. There is anecdotal evidence that UK importers are willing to pay price premiums for high quality Malawian nuts with the desired attributes (pink color). Further study is needed to determine the actual magnitude of the potential price premiums.

3.8. Distribution of price premiums for improved grades and standards

Given the short supply of quality groundnuts, smallholder producers who produce good quality, well-graded groundnuts should be able capture some of the price premiums paid to exporters on the world market. Exporters and traders will also capture some portion of the price premium.

3.9. Who should be the major player(s) to assist improved grades and standards

The recent establishment of the Legumes Association is a positive development towards promotion of groundnuts in the country. Working with the Ministry of Agriculture, APRU, ICRISAT and the private sector, new groundnut varieties should be promoted and handling knowledge disseminated through the supply chain. Similarly, the Malawi Bureau of Standards has a central role in ensuring consistent quality products for export.

4. Pigeon Peas

Pigeon pea (*Cajanus cajan*) is the main grain legume crop of the tropics and sub-tropics. It is mainly grown as food and cash crop and contains 27 percent protein for normal growth and development. There is a significant cross-border trade in pigeon peas between Mozambique and Malawi. The comparative advantage for Malawian export of pigeon pea lies in bringing Malawi's crop to market during the three month period prior to Indian harvest. By accessing the Indian market, price premiums of up to 40 percent can be achieved. The major constraint at this stage is the lack of widespread production of early maturing varieties in Malawi. Grades and standards issues at critical points in the supply chain are identified in the following sections.

4.1. Inputs

Like groundnuts, pigeon pea does not require commercial inputs. As a legume, it fixes nitrogen from the atmosphere through a symbiotic nitrogen fixation process. In addition, the leaf-fall, decayed roots and root nodules add nitrogen to the soil.

Increased production of pigeon peas is constrained by the lack of seeds. Current local production is of high quality but is late maturing. Being late maturing, Malawi's harvest period coincides with the Indian supply coming to market, when prices are low. Early maturing varieties have been developed but are not widely grown in Malawi at this time.

4.2. Production and Handling

Smallholder farmers are the primary producers of pigeon peas in Malawi. Current production is less than 40 percent of the total demand for pigeon peas by processors and exporters. The excess demand is fulfilled by informal imports from Mozambique and consequent packaging, grading and export from Malawi. Substantial cash crop and export potential is currently unexploited. Increased production and the introduction of early maturing varieties will increase farmer revenues and Malawi's export base.

4.3. Storage and Transport

Given the high transportation costs, Malawi is unlikely to have a comparative advantage in the export of pigeon peas to the Indian market unless early maturing varieties are widely introduced.

4.4. Processing

There is little grading of raw pigeon peas for export except to ensure that the pigeon peas are well ripe and dried and there is little contamination by foreign matter and weevils. India buys pigeon peas on a grade called fair average quality (FAQ). There is a significant dahl processing industry, 10 companies, located in Blantyre. Most of the dahl is processed for the domestic market. However, dahl is exported to the UK and there is potential to increase these exports.

4.5. Marketing

Domestic Markets. Like many agricultural commodities, the closure of ADMARC marketing channels has contributed to market uncertainty leading to decreased production by risk-averse farmers.

There are ten companies (Dhal Millers Association) involved in buying, processing and exporting pigeon pea. Pigeon peas are assembled and transported to the dhal mills situated in and around Blantyre by a network of rural traders and transporters who specialized in a wide range of crops from smallholder farmers. During the peak season, these private traders set up markets in the main pigeon pea growing areas.

Regional Exports. There are no major markets for pigeon peas in the region except for informal cross border trade between Malawi and neighboring countries of Zambia, Tanzania and Mozambique.

Global Exports. The primary export market for raw pigeon pea is India where domestic consumption in 1996/1997 reached two million metric tons against 60,000 metric tons exported from Africa in the same year (Jaeger 1998). There is greater scope for expansion of these exports. In 1995, India imported 82,000 metric tons of pigeon pea while in 1996 this rose to 132,000 metric tons.

Estimates for the 1998-99 were as high as 200,000 metric tons. The other pigeon pea exporting countries are Kenya, Uganda, Tanzania and Burma.

Malawi also exports its pigeon peas and dhal to the UK. Malawi's pigeon peas are considered to be of superior quality in terms of size and taste and thus, Malawian dahl is preferred to Indian dahl. The UK market prefers bold creamy grains. Malawi's local land races are bold while India's are small. This gives Malawi an advantage over India. Consequently, Malawi's pigeon peas is taken as the bench mark grade on the UK market. The UK imports approximately 1,500 metric tons from Malawi annually.

From interviews with Rab Processors Limited and Nali, Ltd., Malawi has a potential of retaining the Indian market and expand to European markets since pigeon peas from Malawi are superior in taste, color and size to those from other countries. However, the major challenge is on timing of the exports to take price advantage where market prices tend to be the lowest at the beginning of the season (November) and highest towards the end of the season (April, May). The Indian supply of pigeon peas comes into market around November and Malawi's supply comes in September. Malawi could take advantage of this to produce early maturing varieties to enable exporters to ship pigeon peas when prices are highest.

4.6. Demand for improved grades and standards

There is demand for improved grades and standards for pigeon peas. Particularly, there is interest in the development of early maturing varieties for the Indian market. As for processing, exporters of dahl know that Malawi can not compete with the Indian price, so they must use quality as a differentiation strategy. Thus, there is a great deal of interest in improving grades and standards for pigeon peas in order to maintain the preferred quality characteristics and capitalize on them.

There is also demand from exporters for basic grading training for farmers. However, they are reluctant to invest in such training due to problems with side-selling.

4.7. Potential for price premiums for improved grades and standards

Interviewees persistently commented that Malawian pigeon peas and dahl are preferred on the world market. There is anecdotal evidence that UK importers are willing to pay price premiums for high quality Malawian dahl with the desired

attributes (color and flavor). Further study is needed to determine the actual magnitude of the potential price premiums.

4.8. Distribution of price premiums for improved grades and standards

Given the short supply of quality pigeon peas, smallholder producers who produce good quality, well-graded pigeon peas should be able capture some of the price premiums paid to exporters on the world market. Exporters and traders will also capture some portion of the price premium.

4.9. Who should be the major player(s) to assist improved grades and standards

The recent establishment of the Legumes Association is a positive development towards promotion of pigeon peas in the country. Working with the Ministry of Agriculture, APRU, ICRISAT and the private sector, new pigeon pea varieties should be promoted and handling knowledge disseminated through the supply chain. Similarly, the Malawi Bureau of Standards has a central role in ensuring consistent quality products for export.

5. Coffee

Export potential for coffee is moderate to high. Coffee is an internationally traded product on the futures market. The world coffee market is dominated by Brazil. Brazilian production and price speculation are the driving forces behind the high volatility of world coffee prices. Malawian coffee is generally viewed as a "filler" product that is used in blended coffees and instant products because the beans produce a "thin" cup. Grades and standards issues at critical points in the supply chain are outlined in the following sections.

5.1. Inputs

Coffee production requires technical agronomic knowledge specific to coffee. A major constraint for smallholder production is inadequate agronomic and/or technical knowledge on production (Kachule et al.). The use of imported inputs, including

fertilizer and pesticides, is necessary to produce the quality demanded on the world market. One exporter summed up the critical importance of inputs by saying, "Coffee has a future but it can not be grown on a shoestring."

Some producers in Malawi are growing certified organic coffee. The motivation behind the shift to organic production was to save on imported input costs and to obtain a price premium. However, it is questionable whether the price premium offered can offset the yield and quality loss from organic production. Organic coffee can command a premium of 7 percent to 35 percent but Malawian coffee is on the lower end of this spectrum because it is a filler product (see Box 1).

5.2. Production and handling

Malawi, along with Kenya and Zimbabwe, produces washed clean arabica coffee that is picked by hand and is thus, not subject to mechanical damage. Brazil produces robusta coffee using mechanized production which leads to a low quality level. However, there is no price premium for hand-picked coffee.

Coffee is an important tree nut crop for both estate and smallholder producers, however the bulk of Malawian coffee is produced on estates. The volume of coffee produced by both smallholders and estates widely fluctuates with world market prices. Because of these fluctuations and relatively low production volumes, Malawi is not considered to be a significant and consistent producer of coffee in the world market.

5.3. Marketing

Domestic Marketing. The Smallholder Coffee Authority is currently undergoing a transformation from a government administered entity to a farmer owned and managed cooperative. This effort has been initiated with support from the European Union. Funds are being provided to train the farmers on leadership, management, and organization. This is one form of organization where farmers can get the necessary information and technical support for the management of the production and marketing of their coffee. However, the sustainability of a smallholder cooperative operating in a volatile world market poses significant challenges.

Smallholder farmers are also linked to international coffee markets through the coffee estates. They produce coffee and sell to the estates through spot market transaction or contracts. The coffee export market is tightly organized and controlled. It consists of a small number of coffee estates, which must be licensed to export coffee. Thus, coffee is a viable crop for outgrower schemes because there is little opportunity for side-selling and the requirement of an export license deters "fly-by-night" exports. Benefits of contracting for smallholder farmers include price risk management, access to inputs and technical assistance. Contract farming benefits estates because it alleviates land constraints and provides a cost savings in labor and supervision, i.e. addresses the "principal-agent" problem.

Regional Exports. The coffee export market is a global market.

Global Exports. The International Coffee Organization (ICO) groups Malawi with other small-volume countries. Increased production would boost Malawi's image as a coffee producer and potentially lead to higher prices. One large coffee exporter estimates that if Malawi tripled its production it would "put them on the map" commanding 10 percent to 15 percent higher prices.

This highlights one of the major problems Malawi faces in the coffee export market - buyers require exporters to produce consistent quality and quantity year in and year out. In order to be a successful exporter, a long term-commitment to coffee is necessary to build a good reputation and trading relationships. This means producing even in years when the prices are not very favorable and providing consistent quality.

Price risk can be managed using the futures market. This is the price risk management strategy currently employed by many of the large coffee estates. It is a critical element to long-term survival in a highly volatile world market. It is questionable how successful farmer cooperatives will be given the level of management knowledge needed to manage price risk.

Coffee grades and standards for the export market are set by the ICO. The ICO grade must be clearly stated on the export grade certificate, which is required on all coffee exports. The Coffee Association of Malawi, a private industry organization, issues the grade certificates. A committee of experts examines samples of each export lot on a weekly basis to insure that the grade is correctly described. The ICO grades and standards are considered voluntary industry standards and are not a legal necessity for export. However, since the ICO controls world coffee trade, its grades and standards have become the international norms and thus, define the requirements for the world market.

A reputation for quality and long-term, personal relationships are also important in the world market. One of the leading coffee exporters stated that he has buyers for his top grade of coffee who do not even require samples anymore because he always gives them consistent quality.

5.4. Demand for improved grades and standards

Quality standards for the world coffee market are dictated by the ICO. There is no demand for improvement of these standards. There is demand from smallholder farmers and farmer groups for technical assistance in order to understand and interpret these standards as well as meet them.

5.5. Potential for price premiums for improved grades and standards

The export market for coffee is competitive. Standards must be met in order to gain access to the market. Currently, the pricing structure pays according to grade. There is potential to capture the benefits of the premium grade price premium by to produce higher quality and thus, producing more of the premium grade.

5.6. Distribution of price premiums for improved grades and standards

The coffee estates are in a better position to capture the benefits of the quality price premiums because they have strong linkages to the world market. They also have the management capacity that is necessary to operate in a volatile and competitive world market. However, smallholder farmers can also obtain price premiums through linkages to the world market through the Smallholder Coffee Authority or through successful estates.

5.7. Major players(s) to assist in grades and standards improvement

The most capable player to assist in meeting export standards are the successful coffee estates because of their market knowledge, experience and contacts. As an industry association, the Coffee Association of Malawi currently provides an enforcement mechanism for the industry grades and standards. They can obviously play an important facilitating role to increase the industry volume and quality. The Smallholder Coffee Authority and NASFAM are key links for smallholder farmers.

6. Irish Potato

The Irish potato is a popular and widely grown crop in Malawi. Potatoes are consumed in the home as well as used in processing for potato crisps (potato chips). There is also significant demand for potatoes in the food service sector, particularly for chips (French fries). However, potato production is seasonal and the quality produced is very low. Grades and standards issues at critical points in the supply chain are outlined in the following sections.

6.1. Inputs

Potato quality is poor because of lack of good quality seeds and years of recycling planting materials. Not much research has been done on Irish potatoes in terms of

developing or adapting some improved and high yielding varieties that would favorably compete with those imported from South Africa. Malawi does not have a certified seed potato program.

6.2. Production and handling

Pests and diseases also contribute to the low quality of potatoes produced in Malawi. The most common insect pests are aphids, potato tuber moth, cutworms and nematodes. The diseases include bacterial wilt, black leg, potato leaf roll virus, potato virus Y, and potato virus X. Pests and diseases can be controlled through the proper use of pesticides, nematicides and fungicides. Without these inputs, yield can be very low, if not zero, in a bad year or season (Gondwe). However, most farmers do not utilize these inputs due to the high cost.

Potatoes should be harvested when mature according to variety. Varieties in Malawi vary in maturity time from 75 days to 120 days. Mature tubers have hard skins and are not easily bruised when rubbed by hand or when harvested and collected from the field. Potatoes lifted early or before hardening get infected through bruises and heavy losses occur through rotting (Gondwe).

On average, potato yields are far below potential because of poor agronomic practices, lack of inputs and early harvesting.

6.3. Storage and Transport

Potatoes are about 70 percent to 80 percent water and 20 percent to 30 percent dry matter. Storage of potatoes means maintaining water in the tubers. In tropical environments this is very difficult, especially under the average farmers' conditions in Malawi. Therefore, post-harvest losses of potatoes are very high and a big limiting factor for production (Gondwe).

Potatoes are usually stored in pits in the ground. This method is not very effective and off-season potato quality is extremely poor.

6.4. Processing

Universal industries produces potato crisps (potato chips) from Irish potatoes. They require 20 metric tons of potatoes per week. Universal has experienced several problems with procuring the necessary quality and quantity of potatoes for its potato chip processing lines (see Box 4).

6.5. Marketing

Domestic Marketing. The domestic market for potatoes is similar to that of tomatoes and other fruits and vegetables. Potatoes are sold through three marketing channels, supermarkets, food service, and local markets. Supermarkets rely heavily on imports from Zimbabwe and South Africa because imported produce is usually well packed and of superior quality in terms of size and uniformity. An important aspect of imported produce packaging is the use of standard weights, which is necessary for pricing. Supermarkets prefer to buy potatoes already packaged into standardized 10 kilogram bags.

Because chips (French fries) are a very popular item, demand for potatoes in the food service sector, i.e. hotels, restaurants, hospitals, schools and government cafeterias, is significant. They mainly source products through contracting with commercial farmers. However, small restaurants and kiosks buy directly from traders or utilize the local market.

Local markets are governed by spot market transactions. Customers are low to middle income households. Thus, the range of products is narrow and the premium on quality produce is lower than that in supermarkets and food service. Often, the only quality factor used to grade and sort produce for sale is size. In some markets, standard weights and measures are used for certain products such as potatoes. However, they are often priced by the pile.

Produce found in the local market is sourced from smallholder farmers. Farmers who have access to transport and/or the cash to organize transport, sell directly to the market vendors. However, much of the produce is brought to market by

traders who hire transport and go to the rural areas and get the produce. Traders buy potatoes in a large sack (approximately 100 pounds) which then usually changes hands several times before it is bought by a vendor who then sells the potatoes in smaller quantities to consumers.

As with other horticultural produce, the price of potatoes varies throughout the year due to the seasonality of production. During the off-season, potatoes are scarce and prices are high.

There is significant cross-border trade in Irish potatoes between Malawi and Mozambique. Large piles of potato sacks can be seen along the road at the border. While trade occurs both ways, a greater portion of potatoes comes into Malawi than goes into Mozambique.

Regional Exports. Apart of the informal trade with Mozambique discussed above, there is no significant potential for increased exports of fresh Irish potatoes in the

regional markets. However, there is potential for processed products. Specifically, Universal's potato crisps could challenge South African brands in Mozambique and Zambia.

Global Exports. Global marketing is not a viable alternative for potatoes.

6.6. Demand for improved grades and standards

Significant demand exists from Universal Industries for the diffusion of quality seed potatoes and good agricultural practices. However, they are reluctant to make an investment in these grades and standards due to problems with side-selling and contract enforcement. There is also demand from the supermarket and food service sectors for improved quality standards as well as packaging standards in the form of standard weights and measures.

6.7. Potential for price premiums for improved grades and standards

There is a potential for a price premium for high quality potatoes to supply the supermarkets, the food service sector, and Universal Industries.

6.8. Distribution of price premiums for improved grades and standards

Smallholder farmers and traders will benefit from the price premiums. However, in order for the premium to reach the farmer, market linkages with customers must be made perhaps in the form of contracting.

6.9. Major player(s) to assist in grades and standards improvements

ICRISAT, SARRNET and NGOs involved in seed multiplication will play an important role in producing and distributing good quality seeds particularly as the seed industry develops. However, viable seed companies must emerge to fill this market void. Universal Industries is also importing seed potatoes from South Africa and multiplying them on the company's estate.

Current horticultural extension services of the Ministry of Agriculture are poor and do not focus on potatoes or potato quality. Universal Industries is providing some technical assistance and extension to farmers but is reluctant to invest in this function due to the public good nature of these activities.

7. Spices

Spices represent one of the few feasible opportunities for targeting high-value niche markets in Europe, the United States and Asia, as well as the SADC region, particularly South Africa. They are widely used in food seasoning and processing, cosmetics, perfumes, and other industrial uses. Spices can be sold fresh or dried. However, spices should not be seen as the magic replacement of tobacco but as a part of a portfolio of export products that can earn foreign exchange and help to offset declining revenue from tobacco.

The world market for spices is growing. The increased popularity of ethnic foods, particularly Asian food, is likely to continue and the demand for spices will follow. The fresh spice market is a particularly high value niche market. However, spice production, particularly chilies and paprika, is attractive for Malawi because they can be dried on farm. This reduces transportation costs because most of the weight of the fruit is water. Also, dried products are

not highly perishable like fresh horticultural products and thus, do not require a highly coordinated supply chain, including efficient transportation and cold storage.

Bulk spice commodity production is an export market with immediate short-term export potential. A few companies have already successfully penetrated the world market for paprika and chilies. Long-term export potential also exists for spice processing in country (grinding or oil extraction and packaging). However, this would require significant capital investments in production equipment and technology. Paprika and chili production have recently emerged as strong export crops and there is growth potential for both commodities. Other spices with potential are ginger, turmeric, cayenne chilies, pepper, and cardamom. There is also potential for small niche marketing of "industrial use" crops for natural food colorants and essential oils. These include annatto and marigolds.

7.1. Paprika

Paprika was introduced to Malawi in 1995. It has become the leading export horticultural crop by volume in Malawi. Grades and standards issues at critical points in the supply chain are identified in the following sections.

7.1.1. Inputs

Paprika has the advantage of requiring less commercial inputs than tobacco. However, using good quality seed is imperative. Unreliable seed sources and recycling seed can lead to disease and pest problems and pungency buildup which is undesirable. Because good quality certified seed is not available in the market, exporters are providing seed to farmers to insure the quality of the crop.

Most pests and diseases can be controlled through good agricultural practices. However, the use of fungicides and pesticides are necessary in some cases.

7.1.2. Production and handling

Paprika belongs to the same family as tobacco, Irish potato tomato and eggplant. Because paprika production is like burly tobacco production, smallholder farmers already have good knowledge of the necessary production practices. It requires the same environmental conditions required by tobacco and thus, can be grown in most regions of the country. The labor input for paprika is 20 percent less than tobacco.

Paprika is produced by smallholder farmers as well as commercial farmers and estates. However, the majority of paprika is produced by smallholder farmers. The number of farmers planting paprika is growing rapidly. Production is expected to increase in the 2000-1 growing season due to low tobacco prices.

Post-harvest handling of paprika consists of drying and grading the fruit, which is done on farm. Proper post-harvest handling and drying procedures are a crucial element in producing good quality paprika. Washing, drying and grading are the key steps in post-harvest handling where quality is affected.

Cheetah recommends that farmers **wash** harvested fruits in lightly chlorinated water to remove dirt and chemical residues. This reduces post-harvest loss of fruits. Most paprika brought to the market have not been washed in chlorinated water and still have soil on the fruit. This is a disadvantage to the farmer because soil/dust decreases quality of the paprika by reducing the color value and promoting fungal growth. Washing of paprika fruits should be done before de-stalking and immediately after harvesting. If washed after de-stalking, water will enter in the fruit and can cause the fruit to rot.

Proper **drying** is necessary to increase the quality of the crop. The farmers use solar drying on simple drying racks. The fruit should be placed on the drying racks immediately after washing. When harvested at its proper time it dries within 2 to 3 days. The advantage of solar drying is the low cost of drying racks and reduced risk of aflatoxin contamination and molds. However, solar drying does affect the color of the fruit and reduces quality slightly more than covered drying.

Grading is also a key element in the on-farm processing of paprika. Grading is done according to visible color intensity of the skin. Disease condition is the second criteria for proper grading. Paprika is graded into 4 grades with prices based on grade (top quality grade gets the highest price).

- Grade A - Dark maroon, no disease spots, with thick skin

- Grade B - Dark maroon, max 25% disease spots, slightly thick skin
- Grade C - Red/maroon, 25% disease spots, with thin skin
- N.A. - white or orange skin due to diseases - have no value

Preliminary grading should start when drying the fruits on the drying racks. The various grades should then be dried separately and stored in different containers. If the grading is not done properly and bales with mixed grades are presented, exporters will deduct grading cost.

7.1.3. Storage and Transport

Storage and transport are critical stages in the marketing process where quality can potentially be eroded. Dried paprika must be stored in clean, dry, dark, and cool sheds, the bale or bag must be elevated off the floor and checked regularly for rats and rodents. The quality of the paprika reduces over a period of time resulting in lower returns. Therefore, farmers are advised to sell their crop soon after drying and baling. A lot of post-harvest damage has been observed in paprika throughout the country. Moldy paprika is usually the result of poor storage and/or reconditioning⁹ of paprika. The preferred form of packaging for paprika is in bales similar to tobacco. However, smallholder farmers can also pack their paprika in bags.

The most significant transport problem is aflatoxin contamination, which can build up during storage or transport. Microbial contamination can also occur during transport or storage.

7.1.4. Processing.

Currently, paprika is exported in dried commodity form. Further processing, including grinding or oil extraction, represents a long-term export potential. However, a consistent, high quality supply must be built up before a large

investment in processing capacity is made. Also, quality and process standards for processed products are very stringent and will require large levels of investment in processing equipment as well as technical knowledge and quality and safety control systems.

7.1.5. Marketing.

Domestic Marketing. The domestic marketing channel for paprika moves the product from the farmers to the exporters. The largest paprika exporter, Cheetah Ltd., runs an outgrower program, which included the provision of inputs and extension services. However, a combination of factors is contributing to scaling back and perhaps complete abandonment of this

⁹ Reconditioning is a widely used practice in tobacco where a small amount of water is added to dried product in order to bale it. This practice leads to mold problems with paprika.

program. In past years, they have used two methods of payment. First, if the paprika was collected from the collection points by the company, the farmer was paid at the office 3 or 4 days later. Second, if the farmer transported his goods to Cheetah, he was paid cash on delivery. Recently, they have experienced problems with their farmers side-selling their contracted production to "fly-by-night" traders (mainly from South Africa).

In response to these problems, several changes have been made with respect to the outgrower scheme. First, this year they paid cash to farmers at the collection points in order to prevent some of the side-selling. Second, the only input currently provided is seed. Fertilizers and chemicals are no longer provided. However, they still maintain technical advising and are promoting good rotation practices and the use of manure for fertilizer. So far the quality has been reasonable good and consistent but it is still questionable if these measures will be sufficient to meet quality needs over several years because soil-borne, fungal diseases and other problems can build up over the years. It is unlikely that smallholder farmers will be able to afford commercial inputs if they become necessary. As a profit maximizing firm, Cheetah would like to minimize its production costs. They are currently working with the Paprika Association of Malawi (PAMA) sharing their experience in paprika production, technical knowledge, and extension services. It is envisioned that PAMA will take on many of the extension and marketing services Cheetah is currently providing, thus reducing their production costs.

PAMA was established in 1998 through an initiative by the Malawi Export Promotion Council. However, the organization was inactive because it did not have organizational focus and lacked financial resources for operation. Recently, the Danish International Development Agency (Danida) has committed 16 million Kwacha for the operation of the association and technical assistance to the farmers. As with all donor-funded grower organizations, the sustainability of PAMA in the long run is questionable.

Regional Exports. South Africa is the major destination for regional paprika exports due to the processing facilities for oil. Paprika is also exported in small quantities to Zimbabwe for export by commercial paprika farmers.

Global Exports. The main export market for paprika is Europe where 10 Spanish companies dominate the market. Exporters sell directly to these companies. The US market is also an export destination, however it is a difficult market to penetrate because of the dominance of a few large conglomerates. There are also several small, geographically dispersed processors in the US, which are most easily targeted through import agents.

Because paprika is a niche commodity, success in export markets depends heavily on investment in market contacts.

Quality standards for paprika exports are an important factor and have had a significant impact on market development and the success of exporters. See box 3 for an account of the success and failure of paprika exports. Quality

standards for international trade are based on color units called ASTA. Laboratory testing is used to determine the ASTA. Food safety standards require certain tests to detect contaminants, particularly aflatoxin levels and microbial contaminants, including e-coli and salmonella.

Zimbabwe represents a potential competitive threat due to the large number of tobacco farmers. However, the magnitude of the threat is uncertain due to the current political instability.

7.2. Birds eye chilies

Birds eye chilies are another well-established spice export crop. The volume of chili production has significantly increased over the last five years. However, the volumes have not been consistent ranging from 1800 to 4000 tons per year. Only a fraction of this total, 10 to 15 tons, is used in the domestic processing industry. The remainder is exported. Grades and standards issue at critical points in the supply chain are outlined in the following sections.

7.2.1. Inputs

Quality seeds are the most important input for good quality chilies. Because good quality certified seed is not available in the market, exporters are providing seed to farmers to guarantee quality of the crop. For example, NASFAM produces seeds from demonstration plots and distributes them to farmers in order to insure they are planting good quality seeds. Nali, the largest exporter of dried chilies, also provides seeds to farmers.

7.2.2. Production and handling

Birds eye chilies are predominately produced by smallholder farmers with very few commercial inputs.

The initial processing of chilies is similar to paprika consisting of drying and grading the fruit on farm. Proper post-harvest handling and drying procedures are a crucial to produce good quality. Washing, drying and grading are the key steps in post-harvest handling where quality is affected.

Harvested fruit should be **washed** in lightly chlorinated water to remove dirt and chemical residues. As with paprika, this reduces post-harvest loss of fruits and increases the quality.

Proper **drying** is necessary to maintain the quality of the crop. Farmers use solar drying on simple drying racks. The advantage of solar drying is the low cost of drying racks and reduced risk of aflatoxin contamination and molds. However, solar drying leave the chilies exposed to the elements and can lead to foreign contaminants such as insects and animal/human hair.

Grading is also a key element in the on-farm processing of chilies. Grading is based on specified standards for size, color, rotten stock, and foreign matter. One color is not better than another color (bright red or orange, etc.) but the color should be consistent. There are two basic grades for birds eye chilies, grade A and grade B. In general, there is a price premium of about 10 Kwacha for grade A over grade B. The most problematic standards for farmers to meet are the presence of rotten stock and foreign matter because of problems with drying and storage.

Many farmers do not attempt to grade their product or they do not grade it correctly. The absence of grading stems from two problems. First, some farmers do not know how to grade correctly. Second, many farmers do not see the need to grade. They do not understand the link between proper grading and price premiums. It was reported that traders are a little better than farmers at grading but even they are not grading properly.

Insufficient grading and lack of grading leads to an added cost to the exporter and/or processor who must then grade or re-grade the product upon receipt. Nali can not ship as much product as they would like because they must spend so much time re-grading the chilies. Exporters expressed a willingness to pay price premiums for well-graded products but they are not willing to invest resources in grades and standards training and education because of problems with side-selling. The exception to this is NASFAM. Farmers who are members of NASFAM have been trained in how to grade and on the link between proper grading and price premiums.

7.2.3. Storage and Transport

Storage and transport are critical stages in the marketing process where quality can potentially be eroded. The greatest risk is aflatoxin contamination, which can build up during transport. Microbial contamination and other contamination, like insects, dirt, or animal hair, can also occur due to poor and unclean storage or during transport.

7.2.4. Processing

Nali is the only domestic processor of chilies. They produce chili hot sauce and other sauces for the domestic market and export within the SADC region. They would like to expand exports of their chili hot sauce to the European and US markets. However, health and safety standards have

proved to be a difficult obstacle. See Box 5 for a full account of the barriers to entering these markets.

7.2.5. Marketing.

Domestic Marketing. Exporters collect chilies from drop points from farmers and traders. Traders also bring chilies to the exporters. The supply of chilies is very inconsistent because farmers react to prices from the previous year. This leads to a cyclical situation of surplus and shortages. For example, this year farmers did not plant as many hectares of chilies because prices were low last year. Thus, the prices for chilies are higher this year due to the tight supply.

Contracting (outgrower schemes) is not used in chili production. In the past, Nali supported an outgrower scheme with technical advice and provision of inputs. However, this program has been abandoned due to problems with contract enforcement (side-selling). The only input currently provided is seeds.

Regional Exports. The major regional export market for dried birds eye chilies is South Africa. Exporters predominately utilize import agents to access these markets.

Global Exports. Nali is the largest exporter of birds eye chilies. They export 2500 metric tons per year. NASFAM has also recently emerged as an exporter of chilies. Last year they exported 42 metric tons valuing \$82,000. There are also other small-scale private traders exporting chilies.

Global export markets for chilies include Europe, Australia, and Asia. Exporters predominately utilize import agents to access these markets. Food safety standards required by these markets are acceptable aflatoxin levels and absence of microbial contaminants including e-coli and salmonella. Aflatoxin levels are often the strictest standard and most difficult to meet (see Box 2). Requirements can range from less than 10 parts per billion to 1 part per billion depending on the market. Buyers also set their own requirements for color specifications and moisture.

Buyers require certification that the standards have been met. In Malawi, product certification can be obtained through the Malawi Bureau of Standards (MBS) or SGS, an international, private quality certification company. Some exporters prefer to use MBS because their fees are lower. However, some buyers prefer SGS testing because it is an internationally recognized company.

7.3. Other Spices

A range of other spices including ginger, turmeric, cardamom, and pepper have been identified as potential crops for export. However, further investigation is necessary to determine the export potential. First, the world market situation and Malawi's competitive position must be assessed. Second, the production capacity, including climatic conditions and technical skills, must be considered.

Other potential export niche commodities include a range of natural food colorant such as annatto and marigolds. Consumer demand for "all-natural" products will continue to fuel this potential market. Also, stricter government control and even banning of artificial food products will also contribute to increased demand in this market. For example, a new EU rule states that by 2005 all animal feed must be made from only biological matter. Currently, a significant amount of artificial coloring is used, especially in chicken feed. There is also potential to exploit the herbal market niche, which has seen growth in recent years as people became interested in natural medicines. Particularly Hibiscus sabdariffa is in demand in Europe for herbal tea.

In niche markets, quality standards are usually dictated by buyers and are quite strict. A tightly coordinated supply chain will be needed to produce and guarantee the necessary quality. This is particularly true in niche markets where certification, such as organic, is necessary. Relying on one importer will be risky and producers,

producer groups, and/or exporters will need to invest a significant amount of time and resources into establishing market contacts and building a reputation for quality products. These two factors are a necessity for long-term survival in niche markets.

7.4. Demand for improved grades and standards

There is demand for an improved system of grades and standards for spices, particularly paprika and chilies. Specifically, farmers need to be trained to grade their

produce accurately and consistently. Insufficient grading and lack of grading leads to an added cost to the exporter and/or processor, who then must grade or re-grade the product upon receipt. However, the exporters are reluctant to invest in farmer training due to problems with side-selling.

There is also demand for standards certification. Buyers require certification that certain standards, including their own specific quality standards as well as regulatory standards in the importing country, have been met. In Malawi, product certification can be obtained through the Malawi Bureau of Standards (MBS) or SGS, an international, private quality certification company. While SGS is a private company, they do not have their own laboratory in Malawi and rely on the testing services of MBS. However, the testing capacity of MBS is limited due to equipment and personnel shortages, which leads to slow and sometimes inadequately accurate results.

7.5. Potential for price premiums for improved grades and standards

Exporters of paprika and chilies have developed grades and standards on which they base their pricing structure. However, they report that farmers do not seem to understand the economic importance of properly grading their produce. For

chilies in particular, an exporter expressed a willingness to pay price premiums for well-graded products.

7.6. Distribution of price premiums for improved grades and standards

Farmers, traders and exporters will all benefit from an improved system of grades and standards. Exporters will benefit through reduced transaction costs and potentially increased volumes and exports. Traders can benefit by providing some grading services and through increased volumes. Farmers can benefit from improved grading by receiving the price premium, or some part of it, from the higher quality goods. Depending on the size of the premium, farmers are better off to sell a lower volume of high quality produce than a high volume of low quality produce.

7.7. Major players(s) to assist in grades and standards improvement

The key player in improving standards for a niche export commodity is the exporter. However, lack of contract enforcement and the public good aspect of farmer training on grades and standards act as deterrents for private sector investment in improving grades and standards. Thus, other key players include PAMA, HoDoM and NASFAM.

APPENDIX 2: FUNCTIONS OF STANDARDS

An illustrative way to analyze grades and standards is to classify the issues by the functions of standards. Standards can be categorized into five functional categories.

- 1) *Standards as a means for reducing transaction costs.* This is the most widely developed approach to standards in the literature. In a local market, buyers and sellers know each other and quantities of goods traded are relatively small, so visual inspection is feasible. However, as markets expand in size and distance, the costs of trading rise rapidly. Thus, standards provide the institutional foundation for long-distance, impersonal trading. The transaction cost reducing function of standards can be broken into more specific functional categories:
 - a) Standards provide a means for information transmission in the market system, including information on preferences, practices, values, and costs.
 - b) Standards used as a means for increasing competition. Standards facilitate trade by providing a limited number of homogeneous categories (standardization) so that lots within each can be readily substituted at equal values in the market.
 - c) Standards facilitate the establishment of price-value relationships among various lots and qualities of product.

- 2) *Standards as tools of product differentiation and market segmentation.* While grades and standards have traditionally been used as tools of standardization, standards can also be used as a strategic tool by firms or states to differentiate products and inputs. With the growing interest in "private sector" quality management systems, it is important to consider the dual nature of standards and the line between differentiation and standardization.
 - a) Standards as company strategies to
 - increase market share,
 - create new markets,
 - block entry or force exit of other firms,
 - discipline suppliers.
 - b) Standards used as assurance of reputation of the organization - protecting brand equity, using quality assurance schemes. Brand reputation is maintained through quality standards, which are often maintained through quality management systems (e.g., TQM, ISO, HACCP, cahier des charges).
 - c) Standards used as certifying the authenticity of a product. Examples include AOC and product of origin.
 - d) Standards used as identification of benefits to be derived from the purchase and use of a product. This includes the benefits and costs of particular production processes. Examples include fair-trade labeling and eco-labeling.

- 3) *Product definition and market requirements (rules of the game).* Product definition standards and minimum quality standards (including health and safety standards) define products and the rules for trading. Producers and firms who cannot meet the costs of these standards are excluded from the market.

- a) Standards used as structures serving particular functions - health and safety standards.
 - b) Standards used as state strategies to
 - trade barriers,
 - means to improve the overall quality of goods and services produced,
 - means to improve quality and safety of goods in domestic markets.
- 4) *Standards as assurance of equity.* Standards identify products and processes in a manner that makes them transparent, i.e., clear to the potential purchaser. Standards determine what information must be revealed to both parties in an exchange. This function is closely related to the transmission of information discussed in the transaction cost section above.
- 5) *Standards as a means to insure coordination.* This includes physical relations between object, shipping and packaging standards, as well as over space and time, temporal standards for harvesting and planting as well as physical standards (e.g., hardness, ripeness, color) for produce. Table 1: Grades and Standards Issues in Malawi by Function at Different Points in the Supply Chain.

	Means of reducing transaction costs	Product differentiation	Product definition and market requirements	Assurance of equity	Means of coordination
Inputs	<ul style="list-style-type: none"> • Nonstandard weights and measures. • Dumping of expired products. • Absence of seed certification. 			<ul style="list-style-type: none"> • Nonstandard weights and measures. • Dumping of expired products. • Absence of seed certification. 	
Production and handling		Organic production.	<ul style="list-style-type: none"> • EU pesticide MRLs. • Color: Paprika ASTA. 		Planting and harvest scheduling to avoid over and under-production - fruits and vegetables.
Storage and transport	Weight limits on roads different between Malawi and Tanzania.		<ul style="list-style-type: none"> • EU Aflatoxin regulations. • Regulations with respect to microbial contamination. 		Weight limits on roads different between Malawi and Tanzania.
Processing	Lack of proper grading increases costs of sorting for commodities like pigeon peas and chilies (product must be re-graded).		Documentation of processes and temperatures for food safety requirements - Nali example.		
Marketing	Nonstandard weights and measures for packaging.	<ul style="list-style-type: none"> • Organic certification. • NASFAM attempting to establish quality reputation by only marketing grade A chilies. • Social standards. 			

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