THE GRAIN INDUSTRY VALUE CHAIN IN ZIMBABWE

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Preface

This study was commissioned in support of an initiative coordinated by the Eastern Africa Grains Council (EAGC). The initiative, primarily funded under the USAID COMPETE programme comprises the development of a series of country case studies to map detailed staple food value chains and associated trade and related policies as a basis for both national and regional level dialogue on staple foods trade policy.

The decision to support this process follows from the outcomes of a Consultative Workshop convened by FAO and EAGC, with funding from the EU AAACP, in June 2009. At that workshop, the lack of detailed information on the structure of grain value chains within the East and Southern African region was identified as a critical constraint to policy advocacy in encouraging the design of trade and related policy interventions conducive to intra-regional trade in grains that is cognizant of the both the constraints facing smallholder grain producers and associated value chain actors, and government objectives in relation to food security and wider economic development.

The current study supplements a set of seven being undertaken under COMPETE funding in recognition of the critical role of the Zimbabwean grains sector in influencing current and future staple food trade in the region.

A draft of the study was prepared as an input to a National Consultation held on 18th June 2010 in Harare, for validation prior to its finalisation and inclusion in a regional review process.

Acknowledgements

The compilation of this report would not have been possible without of the key contribution of various stakeholders that participated in the Grain Sector Value Chain National Consultation Workshop. Special mention goes to Peter Chapangara (Processing Manager,GMB), Bridget Mativivira (Marketing Department, GMB), Richard Taylor (Crops Manager, CFU), Elizabeth Musimwa (Agriculture Research Council) and Maurice Chinyani (Chairman, Zimbabwe Oil Pressers Association and CEO, Surface Investments). Their participation in the survey and their inputs are very much appreciated.

Disclaimer

EXECUTIVE SUMMARY

Studies have shown that cross-border trade has the potential to reduce price volatility thereby moderating food price shocks within domestic markets. However despite various efforts through regional integration intra-regional trade within Eastern and Southern Africa has remained low. Analysis of staple commodity trade within the continent has cited trade policy and regulatory requirements as major constraints to efficient intra-regional trade.

The object of this report is to conduct a market assessment of staple food commodities within Zimbabwe through a Value Chain Analysis (VCA) in which the impact of current policy interventions and the potential benefits of reform to these regimes in enhancing intraregional trade is explored. In particular, the maize, wheat, rice and soybean sectors are analyzed. The importance of this study lies in its ability to provide a framework for the development of a strategic plan to improve the value and/or the volume of staple foods produced and marketed in Zimbabwe in view of enhanced regional staple grain trade.

Section 2 of the report provides a brief overview of the relevant trade and domestic policies affecting the grain subsector within Zimbabwe. The Appendices to this section outline the evolution of domestic agricultural policies. Over the past two decades or so, both domestic and trade policy interventions within the grain industries of Zimbabwe have occurred within the context of vast political and socioeconomic change. The overall goal of government during this period was to create an open and market-orientated economy that would allow for the improvement of grain markets through strategic incentives and market-enabling institutions, and sustained productivity growth for the smallholder farming sector. However, up until as recently as March 2009, Zimbabwe's grain markets have largely been typified by interventionist policies. The justification of such interventionist measures included market stabilization and the establishment of food security. These domestic policies have contributed to the sustained underperformance of the agricultural sector. The period between 2000 and 2008 saw a steady decline in production volumes of staple commodities and increasing reliance on food aid and imports from regional neighbours.

Sections 3 through 6 present the value chain analysis for the maize, wheat, soybean, and rice subsector; respectively. The constraints within the maize and wheat industry are firmly rooted at farm level. Productivity in these sectors have been poor and uncompetitive. Over the past five years the national average yield has been below half a tonne per hectare in maize while in the wheat sector total annual output fell from 325,000 tonnes in 1990 to 18,500 tonnes in 2008. Key constraints to the efficient operation of these sectors have been identified. These include: limited access to market information, unreliable supply of low-cost inputs (e.g. seed, fertiliser and electricity), limited capacity to mobilise capital for equipment purchase, high transportation costs, and the lack of enforceable policies such as sanitary and phytosanitary standards. The maize and wheat grain sectors have therefore been characterised by low volume and poor quality grain production relative to regional markets.

The constraints within the Soybean industry occur at both the farm and processing level of the value chain. Overall productivity in the soybean sector has been poor and uncompetitive. This has been attributed to several factors which include: the need for increased irrigation capacity and to refurbish available irrigation facilities; improved farm level financing; reliable supply of low-cost inputs (e.g. seed, fertiliser and electricity); increased investment in processing physical infrastructure; increased foreign direct investment; and removal of stringent importation requirements

Rice production in Zimbabwe is particularly trivial and the nation relies on imports to meet local demand. Within this context the following have been identified as key constraints hindering growth within the subsector: the lack of foreign direct investment; limited lines of credit; government policies on duty and taxes charged on imported technology which discourages local processing and manufacturing.

This report concludes (Section 7) with a summary of key findings and policy recommendations. These include:

- Government's trade policy needs to strike a fine balance between local industry protection and promoting local domestic growth. Local millers are not allowed unfettered access to GM grain when in the end they compete with South African millers who have access to cheaper GM grain which costs about 47% less than organic grain (Musarara, Grain Miller Association Chairman, 2009)
- There is a lack of clear government policy on agro-processing although it is the market for grain producers. Government policies with respect to SPS conditions that enhance performance of producers, and also those that promote regional trade to allow for imports for medium grain milling enterprises, livestock feeds manufacturers, and oil processors need to be put in place as a measure of expanding and promoting growth of domestic and export markets for locally produced grain. The institutional framework to support and enable market access can be moulded along the lines of ZIMACE and trade initiatives may be provided by organisations such as Zimtrade, Zimbabwe Investment Centre and the Export Processing Zone.
- The Departments of Research and Extension; Agricultural Mechanisation, Engineering and Technical Services; and the Economics and Marketing Division in the Ministry of Agriculture, Mechanisation and Irrigation Development should broaden their knowledge and capacity to offer technical assistance and advice, support and extension services that cover an expanded farming sector with a wider range of specific technology needs, land ownership and therefore financing models.
- There is need to enforce food safety and hygiene standards, particularly on domestically produced grains
- Training offered to agro-processors needs to include business management skills as these are lacking in most business people. This entails that training in agricultural colleges and universities should also encompass the same to ensure competence of extension officers in the subject.

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AGRITEX	Department of Agricultural Technical Extension
AIAS	African Institute for Agrarian Studies
AREX	Department of Agricultural Research and Extension
CFU	Commercial Farmers Union
COMESA	Common Market for Eastern and Southern Africa
CSB	Corn Soy Blend
ESAP	Economic Structural Adjustment Programme
FAO	Food and Agricultural Organisation
FEWSNET	Famine Early Warning System Network
GDP	Gross Domestic Product
GIEWS	Global Information and Early Warning System
GMB	Grain Marketing Board
GMO	Genetically Modified Organism
GoZ	Government of Zimbabwe
MLRR	Ministry of Lands and Rural Resettlement
MoAMID	Ministry of Agriculture, Mechanisation and Irrigation Development
MoU	Memorandum of Understanding
PQS	Plant Quarantine Services
SADC	Southern Africa Development Community
SAFEX	South Africa Future's Exchange
SPS	Sanitary and Phyto-sanitary
STERP	Social Transformation and Economic Recovery Program
UNICEF	United Nation's International Children's Emergency Fund
WFP	World Food Programme
ZCGPA	Zimbabwe Commercial Grain Producers Association
ZFU	Zimbabwe Farmers Union
ZGMA	Zimbabwe Grain Millers Association
ZIMACE	Zimbabwe Agricultural Commodity Exchange
ZIMRA	Zimbabwe Revenue Authority
ZNSCA	Zimbabwe National Soybean Commodity Association
ZOPA	Zimbabwe Oil Pressers Association
ZRA	Zimbabwe Retailers Association

1. INTRODUCTION

Studies have shown that cross-border trade has the potential to reduce price volatility thereby moderating food price shocks within domestic markets[5]. However despite various efforts through regional integration, intra-regional trade within Eastern and Southern Africa has remained low. Analysis of staple commodity trade within the continent have cited trade policy and regulatory requirements as major constraints to efficient intra-regional trade[6]

The object of this report is to conduct a market assessment of staple food commodities within Zimbabwe through a Value Chain Analysis (VCA) in which the impact of current policy interventions and the potential benefits of reform to these regimes in enhancing intraregional trade is explored. In particular, the maize, wheat, rice and soybean sectors are analyzed.

To date, few value chain assessments of the grain industry within Zimbabwe have been conducted by the government and/or development partners due to multiple factors of which data limitation and/or reliability are included. The assessments that have been conducted include:

- The International Development Working Paper by the Food Security Group Researchers at Michigan State University, titled "Successes and Challenges of Food Market Reform: Experiences from Kenya, Mozambique, Zambia and Zimbabwe" (1999);
- The Special Report on Zimbabwe conducted by the Food and Agricultural Organization (FAO) Global Information and Early Warning System (GIEWS) (2009).

Given the recent developments in the marketing policies affecting the grain industry within the country and limited current information on the grain markets, the importance of this study lies in its ability to provide a framework for the development of a strategic plan to improve the value and/or the volume of staple foods produced and marketed in Zimbabwe in view of enhanced regional grain trade.

The report is divided into six sections. Section 2 provides a brief overview of the evolution of domestic trade and agricultural policies within Zimbabwe followed by the VCA results for maize, wheat, soybeans and rice in sections 3, 4, 5, and 6; respectively. Section 7 concludes the report with a summary of key findings, policy recommendations and key insights.

[5] See Timmer, et. al., 1983; Koester, 1986; and Dorosh, 2001

[6] FAO case studies on trade and other associated policies in use in the staple food subsector and their impact in Kenya, Malawi, Mozambique, South Africa, Tanzania and Zambia (Sarris and Morrison, 2010).

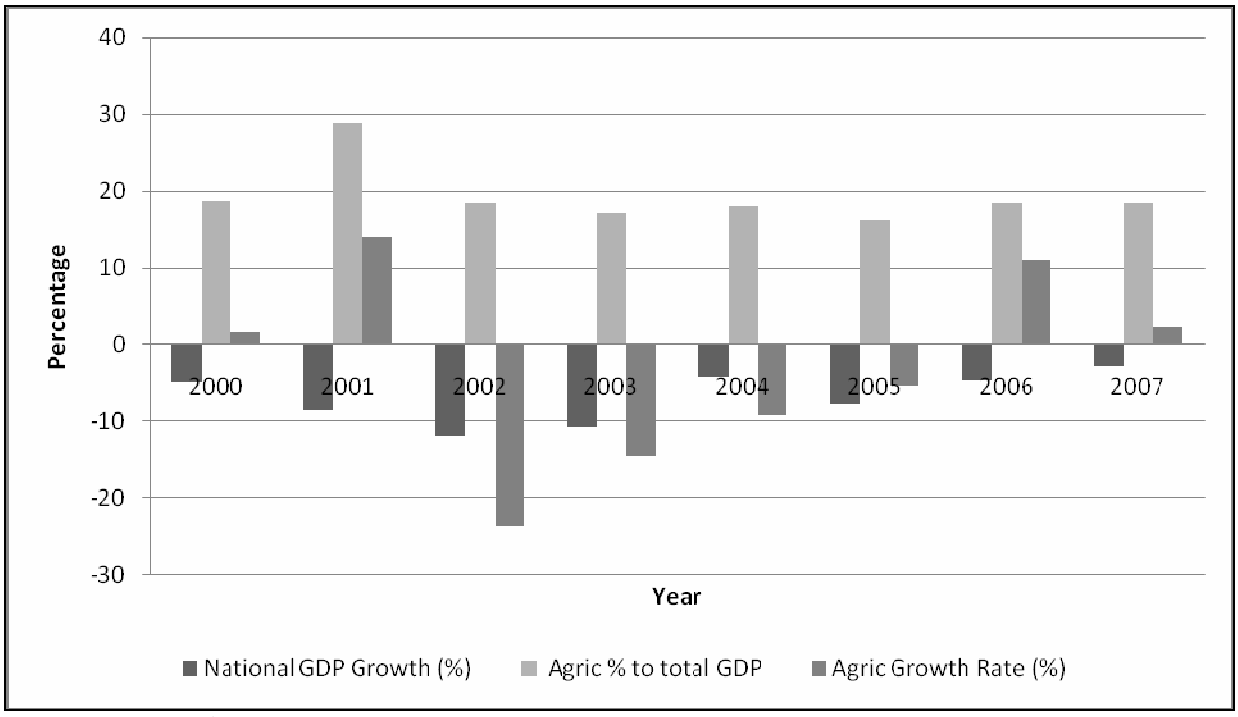
2. OVERVIEW OF TRADE POLICIES AFFECTING THE GRAIN SECTOR

2.1 Agricultural Sector

Zimbabwe's agriculture is well diversified with over 20 types of food and cash crops produced and a livestock sector comprising of beef, dairy, poultry, and piggery production among others. Key agricultural exports from Zimbabwe include tobacco, sugar, beef, horticultural produce, coffee, tea, and cotton lint. Key commodities produced in Zimbabwe fall broadly into four categories. The first category is food grain crops, which include maize, wheat, edible dry beans and small grains (barley, sorghum and millets). The second category encompasses oilseed crops such as soya bean, groundnuts and sunflower; while the third category includes key export crops – tobacco and cotton. The last category comprises high value estate or plantation crops (sugarcane, tea, coffee, citrus), horticulture (floriculture and vegetables) and other non-traditional export crops (e.g. paprika).

Despite undergoing a 12 year recession, during which GDP halved, agriculture still remains one of the most important sectors of Zimbabwe's economy (Robertson, 2009). Figure 1 below shows the trends in Agricultural and GDP growth as well as the sectors contribution to GDP from 2000 to 2007. Agriculture's contribution to the total GDP has remained above 16 percent since 2000 and in some years realized a positive growth rate despite the economy-wide decline in output.

Figure 1: GDP and Agriculture Performance: 2000 - 2007



Source: AIAS (Various Issues)

2.2. Grain Sector and Land Reform

Grain crops and food staples account for over half of Zimbabwe's cultivated land area, and overall agricultural output. This sector alone provides more than half of the country's caloric intake and is therefore a strategic and important vehicle for attaining domestic food security.

Land within Zimbabwe is divided into five Agro-ecological regions. These include regions I, II, and III, which are suitable for intensive crop cultivation while regions IV and V are more suited for livestock grazing (GIEWS, 2000). Under the fast track land reform policy, the implementation of land and agrarian reforms has fundamentally reframed the organisational structure of both the production and marketing institutions. The policy allocated former large-scale commercial units to indigenous farmers under the A1[7] and A2[8] resettlement models[9]. The Mashonaland provinces (Central, East, and West), which are the main grain producing regions, accommodated 46% of A1 land beneficiaries and 74% of all A2 beneficiaries (ibid). The implementation of the fast-track land reform policy has resulted in a dualistic grain producing sector that consists of large-scale commercial farming sector and a relatively complex set of heterogeneous smallholder farmers (Moyo, 2008).

By 2004, the traditional communal sector comprised of 16.4 million hectares, the A1 farms occupied up to 4,231,080 hectares, and A2 farms had been allocated some 2,198,814 hectares (Moyo, 2004). Table 1 below contains land use data for 2006/07 and 2008/09 production periods.

Table 1: Agricultural land utilization patterns: 2006/07 and 2008/09 ('000 of farmers and '000 of ha)

	Number of Farmers (000)		Arable land holding (ha)		Total arable land (000 ha)		Cultivated land (000 ha)		Land utilisation (%)	
Year	**06/07**	**08/09**	**06/07**	**08/09**	**06/07**	**08/09**	**06/07**	**08/09**	**06/07**	**08/09**
A1	145	145	5	5	725	725	357	385	49	53
A2	15.5	16.5	variable	variable	710	710	161	162	55	49

Source: GIEWS, 2009

From this table it is clear that given the amount of arable land available, the newly settled farming sector cultivates only 50% of allocated land.

[7] The A1 model has plots with 5-6 hectares arable and in excess of 6 hectares for grazing.
[8] The A2 model has farms ranging from 15 to 50 hectares in the peri-urban areas, 15 to 250 hectares in Agro-ecological region I and 350 to 2000 hectares in Agro-ecological region V.
[9] See Appendix A and B

2.3 Grain Trade Policy

2.3.1 Evolution of Zimbabwe's Domestic Grain Marketing and Pricing Policy

Over the past two decades or so, both domestic and trade policy interventions within the grain industries of Zimbabwe have occurred within the context of vast political and socioeconomic change. The overall goal of government during this period was to create an open and market-orientated economy that would allow for the improvement of grain markets through strategic incentives and market-enabling institutions that sustained productivity growth for the smallholder farming sector. However, up until as recently as March 2009, Zimbabwe's grain markets have largely been typified by interventionist policies. This was done through the reconstitution of the GMB through the Grain Marketing (Controlled Products) Notice, an Act that made private grain trade illegal, leading to the suspension of the Zimbabwe Agricultural Commodity Exchange (ZIMACE) operations. The Grain Marketing Notice Statutory Instrument No. 235A of July 16 2001 represented a paradigm shift from the complete market liberalisation policy that preceded the market control dispensation. Restrictions to grain trading were further re-enforced through the gazetting of Statutory Instrument 387 in December 2001 which compelled farmers to deliver maize stock to the Grain Marketing Board (GMB) within 14 days after harvest. To complement this set of agrarian measures intended to promote food security, government 'suspended' the standard grading[10] system of grain that was set according to the prescriptions of the GMB and the grains began to be bought at uniform prices regardless of quality.

These domestic policies contributed to the sustained underperformance of the agricultural grain sector. The period between 2000 and 2008 saw a steady decline in production volumes of staple commodities and increasing reliance on food aid and imports from regional neighbours. For instance, in the 2008/2009 marketing year, maize production fell to a little less than half a million tonnes; down from its 10-year average of 1.6 million tonnes in the previous decade. Within the contexts of reduced production capacity resulting in widespread poverty and food shortages, the domestic markets have become heavily dependent on staple commodity imports and food aid.

In order to assess the impact of the current legal and regulatory framework on the maize, wheat, soybean and rice subsectors, key market participants, both private and public, were interview between December 2009 and January 2010. The findings are presented in Appendix C and the discussion to follow draws heavily from these interviews.

2.3.2 Tariff Structures

Zimbabwe is a member of two regional trading blocs. These include;

- The Southern African Development Community (SADC) which launched a drive towards a SADC Free Trade Agreement (FTA) in August 2008 and has also been implementing the tariff phase down policy from 2000 to 2008 under the SADC Trade Protocol.
- The Common Market for Eastern and Southern Africa (COMESA), which implemented a FTA in 2000 and had scheduled to implement a common external tariff by December 2008.

[10] For white and yellow maize, the grades were classified as A, B, C, D and U respectively. For wheat, the grades were AS, BS, CS, DS, AD, BD, CD, DO and U

Thus, Zimbabwe's tariff regime on grain and grain products lies within the domain of the COMESA and SADC trade protocols that allow for preferential treatment of member states in grain trade. However, Mudzonga and Chigwada (2009) have argued that Zimbabwe's compliance rate to both blocs has been very low, and its membership to both these regional blocks have given rise to a complicated and protective tariff structure which has posed huge challenges in harmonizing with the proposed COMESA and SADC common external tariffs. Tables 2, 3, 4, and 5 below summarize the applicable tariff rates on maize, wheat, soybean and rice grains and products.

Table 2: Maize and Maize Products Applicable Tariff (%)

Product	Customs Duty				VAT
	General	COMESA	RSA	SADC	
Maize Seed	10	0	0	0	0
Maize (Excluding Seed)	0	0	0	0	0
Maize (Corn) Flour	25	0	0	10	0
Groats and Meal of Maize (Corn)	20	2	0	10	0
Other worked Grains of Maize (corn) nes	20	5	0	0	15
Maize (Corn) Starch	10	4	10	0	15
Crude Maize (corn) oil	10	0	0	0	15
Cooking Oil of Maize	40	5	0	15	0
Other maize (corn) oil (excl. Crude) & Fractions	10	5	0	0	15
Other prepared cereals in grain form (excl. Maize)	40	5		10	15
Brans, Sharps and Other Residues of Maize	10	0	0	0	15

Source: Zimbabwe Revenue Authority (2009)

Table 3: Wheat and Wheat Products Applicable Tariffs (%)

Product	Customs Duty				VAT
	General	COMESA	RSA	SADC	
Durum wheat	0	0		0	0
Spelt, common wheat and meslin	0	0		0	0
Other wheat and meslin	0			0	15
Buckwheat	10	6.5	12.5	0	15
Wheat or meslin flour	25	0		5	0
Groats and Meal of wheat	20	2	0	0	15
Wheat Starch	15	4		0	15
Wheat Gluten, whether dried or not dried	15	2		0	15
Bulgur wheat	40	5		10	15
Brans, sharps and other residues of wheat	10	0		0	15

Source: Zimbabwe Revenue Authority (2009)

Table 4: Zimbabwe's Soybean seed and Soybean Products Duty Regime (%)

Product	General	COMESA	RSA	SADC	VAT
Soybeans (broken/unbroken)	5	2	0	0	15
Soybean flour & meal	10	5	-	0	15
Cooking oil of soybean oil	40	5	0	15	0
Other soybean Oil[11]	10	5	0	0	15
Expoxidised soybean oil	5	0	-	0	15
Soya Sauce	40	8	30	15	15
Oilcake & other solid residues	10	0	0	0	15

Source: Zimbabwe Revenue Authority (ZIMRA), 2009

Table 5: Duty regime for Rice and Rice Products (%)

Product	General	COMESA	SADC	VAT
Rice in the husk (paddy or rough)	10	0	0	0
Husked (brown) rice	10	0	0	0
Semi-milled/wholly milled rice[12]	10	0	0	0
Broken rice	15	0	0	0
Liquorice sap & extract	10	0	0	15
Other bread & cakes	40	8	10	15
Dentrifrices	40	9.5	15	15

Source: Zimbabwe Revenue Authority (ZIMRA), 2009

While regional integration provides greater access to cheaper regional products to alleviate food shortages, Mudzonga and Chigwada (2009) point out that Zimbabwe's high tariffs on certain tariff lines are designed mainly to protect local grain production and have acted as a barrier to free-flow of food at a time when Zimbabwe is seriously challenged by a chronic food crisis. It is against this backdrop that raw grain has recently been considered duty free, with duty for processed grain commodities ranging from 0 percent to 5 percent for COMESA countries (ZIMRA, 2009). Duty for grain and most grain products from other countries outside the COMESA ranges from 5 percent to 40 percent, and it is for this reason that most grain imports have been coming from the COMESA countries, particularly South Africa (ZIMRA, 2009). In fact, there is a standing Zimbabwe/South Africa bilateral trade agreement which was initially signed in 1964 during the era of the Rhodesian government to provide for preferential rates of duty, rebates and quotas on certain goods traded between the two countries. With a follow-up trade agreement having been signed in August 1996, RSA products have been extended lower tariffs and quota levels on textile imports into South Africa and more recently in 2008 on basic commodity imports into Zimbabwe.

2.3.3 Sanitary and Phyto-Sanitary (SPS) requirements for grain imports

Scientists point out that it is not possible for a crop to be completely Genetically Modified Organism (GMO) free. As such, crops are given particular tolerance levels to their genetically modified (GM) composition. According to the Standards Association of Zimbabwe (SAZ), GMOs are broadly divided into 3 categories[13] defined along GM tolerance levels which are outlined as follows:

[11] This excludes crude oil & its fractions
[12] This includes whether the rice that is polished or not
[13] Personal communication with Abisai Mafa from the Standards Association of Zimbabwe

- Above 1% : GMO,
- 0.01% - 1% : non GMO and
- less than 0.01% : GMO free

Zimbabwe has a longstanding cautious policy against Genetically Modified (GM) food on the grounds of human (and livestock) safety and the potential threat that GM crop contamination could pose for the local environment. In 2002, it was established that there is no scientific evidence that GMOs are harmful to humans. Since then, GMOs have been imported into Zimbabwe under the strict monitoring of a National Surveillance Program which has however been discontinued one and a half years ago due to inadequate funding. Nonetheless, grain imports coming into the country are subject to strict Sanitary and Phyto-sanitary (SPS) requirements, which have acted as a barrier to free cross-border grain trade. Initially, SPS requirements prohibited the importation of GM[14] raw grain. Under the Statutory Instrument 20/2000 Biosafety Regulations, the Research Council established the Biosafety Board to approve the safety of imports of GM grain and grain products. While initially rejecting GM food aid, Zimbabwe later accepted grain provided all GM grain was milled immediately upon arrival[15]. GM grain and grain products are thus imported at the prevailing duty costs plus costs of ensuring that such products are safe, and also costs of preventing risks of contamination. Policy however stipulates that no livestock will be fed with GMO feeds.

A number of conditions exist for those wanting to import grain and these include a thorough pre-shipment inspection from the Plant Quarantine Services (PQS) to establish if the imported grain is:

- Free from pests e.g. borers like weevils, grain borers, Angoumois moths, beetles
- Free from diseases.

If the grain is meant for propagation, the inspectors are to inspect the crops while in the field. This necessitates the inspector going to the exporting country to inspect the processes as well as to verify the crops at the farm, all at the cost of the importer. Inspection of the GMO grain imports goes all the way up to the port of entry and to the miller's door.

Mandatory requirements for grain importers prescribe that grain should be fumigated with phosphin at 2g/tonne for a period of 24 hours before shipment and this should be accompanied by a fumigation certificate. The grain should also be packed in clear and well labelled packages. Moisture content should be adequate to avoid germination and rotting hence the need for the inspector. This is meant to avoid diseases because moist grain can also act as a vector of diseases and pests that may affect grain production in Zimbabwe. The import consignment should be accompanied by a PSP certificate with additional declaration that: seed for consumption and oil extraction should be:

- Free from plant debris
- Packed in new containers/packages
- Free from live insects and fungal growth
- Free from mould growth, especially aspergillus flavours

[14] Current policy prohibits importation of GM grain as Zimbabwe is a signatory of the Biosafety Protocol of 2003.

[15] Training module on the WTO agreement on Sanitary and Phyto-sanitary measures: http://www.unctad.org/en/docs/ditctncd20043_en.pdf and also see "Bridges Trade BioRes", 11 July 2002, at: http://www.ictsd.org.

Whilst all these conditions apply to the grain sector as a whole, other specific conditions apply to the maize, wheat and rice subsectors. These commodities should be accompanied by a phyto-sanitary certificate in addition to a declaration that the:

- Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis)*
- The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.
- The consignment is accompanied by a fumigation certificate.
- The consignment is packed in clean bags or containers.
- For wheat; the grain should come from areas free from Karnal Bunt *(Tilletia Indica)*

In addition, the importation of grain as it crosses the border should also be monitored by a plant inspector who should first go inspect the grain in the exporting country at the expense of the importer. Enforcement of SPS legislation and policy remains the prerogative of the Department of Plant Inspection, Plant Quarantine Services and the National Bio-Technology Authority of Zimbabwe. Important to note though, according to industry experts, is the lack of effective enforcement of sanitary and phytosanitary standards on domestic production which has resulted in the domestic supply base being less competitive to higher quality grain imports.

Currently, it is reported that the commercialisation of GMO production is still at the trial stage. GMO seed imports have been noted as a priority mandate of the Plant Protection arm and the possibility of adopting GMO crop production has been highlighted as a major issue which should be further explored, particularly from grain millers. From a production perspective, GMO seed costs one and a half times more than local hybrid seeds. However, GM seed can yield 15 times more output than local hybrid seed output.

While concerns have been highlighted over the control of imports, particularly seed, the SAZ has emphasized that smuggling of GM seed is highly unlikely because it is highly difficult to import GM seed into Zimbabwe. For one to purchase GMO seed, the importer needs to sign a certificate as to how the produce will be disposed of.

2.3.4 Zimbabwe's Customs Procedures for Importation of Grain

When importing grain, an importer has to obtain a Permit from MoAMID which would outline and include quantity and type of grain to be imported. This permit has to be in at least two copies:

- The Original –for the Zimbabwe Revenue Authority (ZIMRA) filing
- A Photocopy- for marking off against balance yet to be cleared out of the country

Other relevant documentation which the exporter should have includes:

- A CD 1 Form from any Commercial Bank
- An Import Bill of Entry from your Clearing Agent
- An Invoice
- A Consignment Note

The customs clearance procedure has to be facilitated by a 'Clearing Agent'. The importation of the grains is subject to their various tariffs and restrictions as per gazetted Standing Instructions of that period.

2.3 Conclusion

The overall assessment of the policy and legal environment in the grain sector provides an essential foundation for distilling fundamental insights that could better inform present and future efforts at ensuring sustained and accelerated growth in production and trade volumes. At the policy front, the institutional environment for grain production and agro-industry is currently characterized by a generally 'free' environment created from and developed on a liberalisation policy implemented in February 2009.

In the following sections, the activity of all market players in the grain value chain is illustrated by a sample of commodity-specific case studies of selected grain crops. The value chain case studies are motivated by a number of factors which include:

- Detailed description of staple grain commodities, which includes volume flow between each sector along the respective value chains
- Identification of key constraints at each point of transfer along the value chains.

3. MAIZE SUBSECTOR VALUE CHAIN ANALYSIS

3.1 Introduction

Maize is the most important grain crop in Zimbabwe, being both a major feed grain and a staple food for the majority of the population. FAO (2008) reported that maize and maize products accounted for 43% of the total dietary energy supply (DES) between 2003 and 2005; and the average per capita food consumption of maize and maize products was 120 kg/yr between 2004 and 2008. Apart from being consumed as raw grain, maize can be processed into maize meal, or alternatively used to make a variety of other products and by-products which include flour, oil, maputi, samp, grit used in the making of snacks as well as stock-feed.

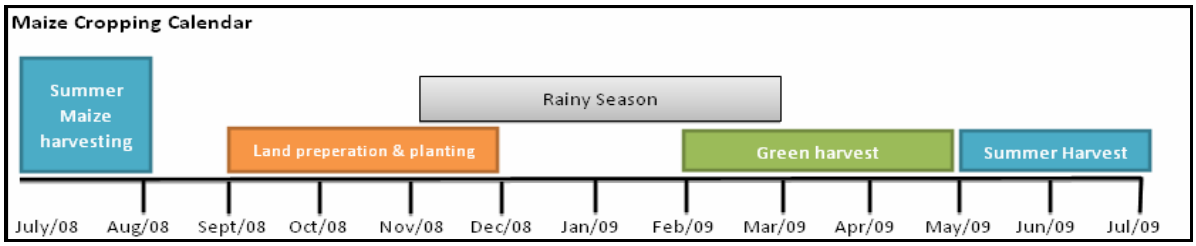
In terms of production, maize is the second most produced crop in Zimbabwe after sugar cane, contributing an estimated 11.6% of the gross value of total agricultural production in 2005 (CSO, Abstracts of Agriculture, 2005). At least 1.5 million tonnes of maize is consumed by humans, with an average of 350 000 tonnes[16] being utilised by other commercial users, including the animal feed industry, while the remainder (estimated at an average 10%) gets used for seed and other industrial purposes (FAO, 2004).

3.2 Production Background and Policy Environment

3.2.1 Production Background

Maize planting takes place in the season from September to around February/March. As shown in Figure 2 below, green maize is harvested much earlier, between February and May, with the conventional harvest period falling between May and August.

Figure 2: The Maize Cropping Calendar

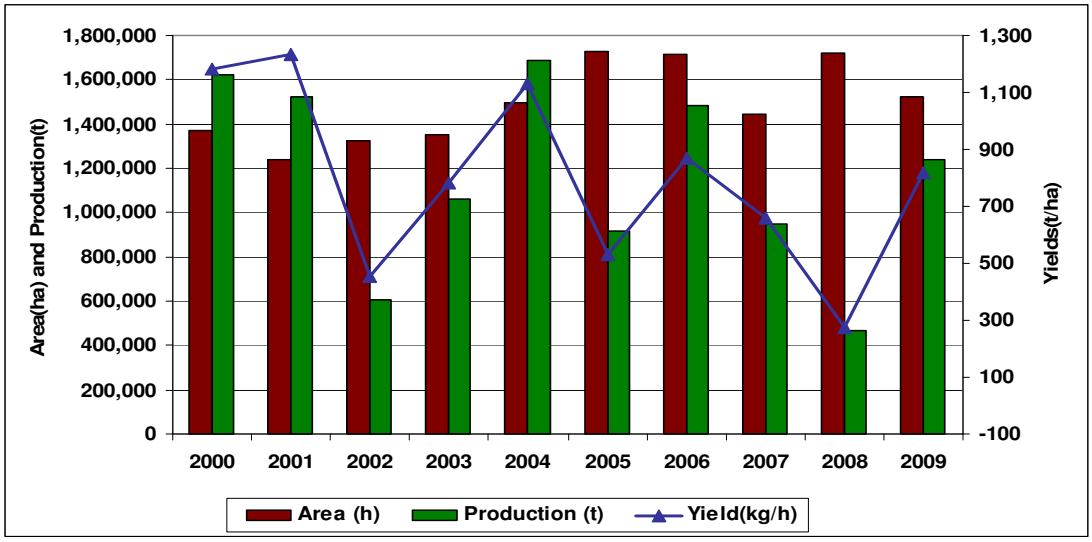


If normal weather prevails, at least 1.2 million hectares of maize should be planted to meet the domestic human consumption requirements of 1.825 million tonnes, on average. Generally, the total maize area planted trend has been increasing over time, with marginal declines in 2003 and 2006. Total area harvested has remained above 1.317 million hectares since 2001 and has been above the 1990's average of 1.301 million. Figure 3 below shows that area harvested peaked in 2005 and 2007

[16] Personal communication with Rudo Nhongonhema, MoAMID

to above 1.7 million hectares. This may be attributed to the effects of the 'fast track' land reform which is believed to have expanded communal and smallholder area.

Figure 3: Maize Area Harvested, Production and Yield



Source: Various Issues (AIAS)

The observed gains in maize area harvested have however not been matched with an increase in yield. Yield has fallen below the 1990's average of 1.25 tons per hectare; with the worst yield being recorded in 2001 and 2007 (see table 6 below). Falling yield levels have been attributed, to a large extent; to input problems that include late availability of inputs, high input costs, and the use of recycled seed. The effect of declining yield is that Zimbabwe has not produced maize that is sufficient to meet domestic requirements since 2001. Industry experts argue that the inverse relationship between total maize area cultivated against aggregate output ignite the need to increase yield and intensify production in the smallholder farming sector rather than have more area under cultivation. The disparity between commercial and communal yield has over the years led to a lower overall average national yield figure. Lower yields in arid regions depressed yields and less maize has been produced in drier regions compared to small grains promotion in marginal areas.

As shown in Table 6 below, maize output has dropped to 575 000T in 2007, the lowest since the 1992 drought. Although maize output increased marginally in 2008, production still remains less than half of national requirements. Forecasts for the 2009/10 farming season by the Commercial Farmers Union (CFU) suggests that output will fall to about 400 000T. This estimate is against the government targeted area planted of 2 million hectares and the Social Transformation and Economic Recovery Program's (STERP's) forecast of the country meeting 80% of its maize requirement. Nonetheless, the country was projected to produce less than half of its national requirement in the 2009/2010 season and this will be due to the challenges of input supply bottlenecks and lack of funding currently facing farmers, as well as the impending drought.

Table 6: Maize Sector Output (Tons) and Yield (t/ha) Relative to 1990's Annual Average

	1990's Ave	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09
Output	1668.6	1476.2	1526. 3	929. 6	1058.8	1686.2	915.4	952.6	575.0	1242.6
	% difference from 1990 Average	*-11.5%*	*-8.5%*	*-44.3%*	*-36.5%*	*1.1%*	*-45.1%*	*-42.9%*	*-65.5%*	*-25.5%*
Yield	*1.25*	*1.1*	*0.4*	*0.9*	*0.8*	*0.5*	*0.6*	*0.5*	*0.33*	*0.81*
	% difference from 1990 Average	*-12.0%*	*-68.0%*	*-28.0%*	*-36.0%*	*-60.0%*	*-52.0%*	*-60.0%*	*-73.6%*	*-35.2%*

Source: AIAS (Various Sources)

3.2.2 Trade and Domestic Policies

Several programs have been pursued through government funded initiatives from 2000 to date to improve maize output. Such programs mainly involved provision of subsidised inputs at concessionary interest rates, and these include;

- The Government Input Scheme (GIS) (2000);
- The Productive Sector Facility (PSF) introduced in 2004; and
- The Agricultural Sector Productivity Enhancement Facility (ASPEF), introduced in 2005.
- The Southern African Development Community (SADC) provision of seed and fertilizer through the SADC Agricultural Inputs Support Initiative (2008) that primarily targeted smallholder farmers in Communal, Old Resettlement, and Small Scale Commercial Areas.
- Fertilizer support to farmer unions, conservation agriculture, (including sugar production, livestock vaccines and drugs, and dip tank rehabilitation, among others) that are supported by the European Union, South Africa, and Spain.

Despite all these efforts, the era of perennial maize shortages has continued unabated. A major concern over the past decade has therefore been recurrent and persistent maize deficits that have triggered increased imports and food aid into the country.

For policy planning purposes, it is essential to construct food balance sheets as a measure of assessing needs and the scope of intervention in grain markets. The balance sheet contains a set of demand and supply block variables, and this is illustrated in Table 7 below. Constructing such balance sheets does however, require sound data which is not readily available in Zimbabwe. In this section, every effort is made to present a picture of Zimbabwe's maize balance sheet position over the past couple of years. It is important to note that data provided from various sources has been markedly different. FAO, ZIMVAC, FEWSET and MoAMID figures tend to vary and this problem is more serious when one looks at opening and ending stocks, consumption (human, seed and feed) as well as imports since 2000. A lack of a reliable database on information as important as this means that more effort needs to be channelled towards the creation of a central database on grain stock uses and movements, especially at this point in the evolution of Zimbabwe's market where we are seeing vast amounts of stocks being traded in the informal sector. According to captured statistics, average annual domestic utilization of maize grain between 2001/02 and 2008/09 is an estimated 1.98 million tonnes. FAO (2008) however reports the total domestic maize utilisation to be 1.825 million tonnes in 2008/09. This is quite different from anecdotal claims from government who estimate that, after taking into

account various other discretionary stock uses such as supply stabilisation stocks from GMB, a total utilisation requirement would roughly be estimated at 2.4 million of grain.

Despite this critical problem, an attempt is nonetheless made by Kapuya (forthcoming) in collating information from various sources to come up with a general picture of the maize supply and demand situation in the market from 2003/04 season. From the collected data, it is interesting to note that net stock balances have been negative in four of the past six years and this effectively reflects Zimbabwe's position as a net importer of maize.

Table 7: Zimbabwe's Maize Balance Sheet (Millions of Tonnes)

Variable	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Supply						
Production	1.68	0.92	1.49	0.95	0.47	1.24
Opening Stock	0.09	0.12	0.07	0	0.15	0.03
Imports						
• Gvt and Private Imports	0.34	0.18	0.69	0.25	0.34	0.46
• Food Aid	0.25	0.07	0.13	0.16	0.33	0.3
• Informal[17]	-	0.13	0.002	0.001	0.002	0.023
Total Supply	**2.36**	**1.30**	**2.38**	**1.36**	**1.14**	**2.04**
Demand						
Human use	1.53	1.55	1.69	1.75	1.63	1.83
Feed use*	0.15	0.13	0.14	0.44[18]	0.15	0.150
Seed use*	0.11	0.1	0.06	-	0.048	0.048
Losses*	0.08	-	-	-	0.040	0.006
Closing stocks	0.12	0.07	0	0.15	0.032	0.05
Total demand	**1.98**	**1.85**	**1.84**	**2.34**	**1. 90**	**2.13**
Surplus/Deficit	**0.37**	**-0.55**	**0.54**	**-0.98**	**-0.76**	**-0.22**

Source: Kapuya (forthcoming).

NB: Based on information collated from GIEWS/FAO (2009), AIAS (Various Issues), *FAO (Various Issues), USAID-FEWSNET (2007; 2009) and MAMID (Various Issues)

[17] Cross-border informal maize imports from South Africa, Zambia and Mozambique

[18] Aggregate of feed, seed and losses

The uncovered deficits during recent years have led to international donor food relief agencies playing an increasingly key role in meeting the food shortages. Kapuya (forthcoming) points out that over the past three years, maize imports and food aid have accounted for approximately one-third to two-thirds of total supply in 2006/07 and 2008/09 marketing years; respectively. Food aid and imports were relatively substantial in the 2007/08 season, contributing an estimated 758 000 tonnes against 575 000 tonnes produced. In disaggregating the food aid component, a table below is presented to show a compilation of the food aid estimates from 2004 to 2008 by the World Food Programme (WFP).

Table 8: Food Aid into Zimbabwe (2004-2008)

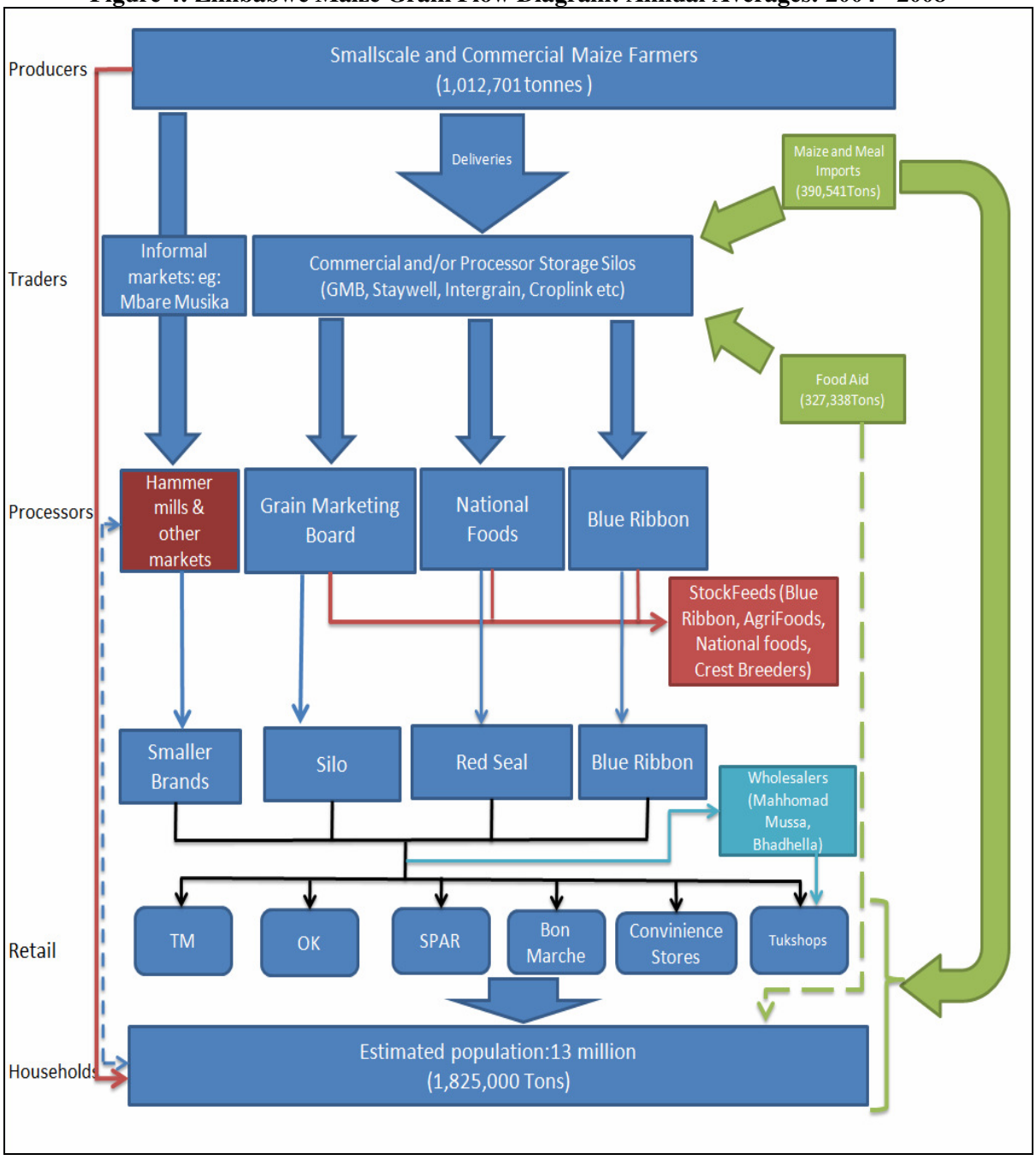
Year	Emergency food aid	Project food aid	Total
2004	248,794.70	258.5	**249,053**
2005	71,552.80	1,522.00	**73,075**
2006	134,487.40	0	**134,487**
2007	145,523.50	10,129.50	**155,653**
2008	322,338.00	5,000.00	**327,338**

Source: WFP Database

3.3 Maize-to-Maize Meal Value Chain Analysis

Presented below is the maize to maize meal value chain map, which illustrates the market pathways and roles of players that are involved in value addition to maize. The volume data presented represents a five year annual average between 2004 and 2008. In the case of grain movement between the Traders/Storage and the retail sectors, due to the lack of transparency and data availability, volume estimates were unable to be calculated.

Figure 4: Zimbabwe Maize Grain Flow Diagram: Annual Averages: 2004 - 2008



3.3.1 Producers

Maize grain producers are largely represented by farmers associations with the objective of promoting, advancing and developing production as well as members' interests. Zimbabwe Commercial Grain Producers' Association (ZGPA)[19], a subsidiary of the Commercial Farmers Union (CFU), has approximately 500 members and largely represents large-scale commercial producers. The contacts for the CFU are outlined below:

- **The Commercial Farmers Union (CFU)**
  - Address : Agriculture House, Cnr Adlynn Rd/Malborough Dr, Harare
  - Contact person: Mr Deon Theron
  - Telephone : 00263 4 309800/19
  - E-mail : dtheron@cfuzim.org

  - Contact Person: Mr Kuda Ndoro
  - Address : Agriculture House, Cnr Adlynn Rd/Malborough Dr, Harare
  - Telephone : 00263 4 309800/19
  - E-mail : kndoro@cfuzim.org

The functioning of the CFU are currently not yet clear with recent and on-going developments of continued land invasions that have severely depleted the number of white commercial farmers remaining. The Zimbabwe Farmers Union (ZFU) is another body which represents largely smallholder to medium scale farmers.

- **The Zimbabwe Farmers Union (ZFU)**
  - Address : 102 Fife Avenue/Sam Nujoma Street, Harare, Zimbabwe
  - Contact person : Mrs EV Mandishona
  - Telephone : 263 4 251861-7
  - Fax :263 4 251862
  - E-mail : evmandishona@zfu.org.zw

  - Address : 102 Fife Avenue/Sam Nujoma Street, Harare, Zimbabwe
  - Contact person : Mr Prince Kuipa
  - Telephone : 263 4 251861-7
  - Fax :263 4 251862
  - E-mail : pkuipa@zfu.org.zw

All the farmer associations, in principle, facilitate horizontal linkages among maize producers and traders in the industry and provide a variety of technical and advocacy support services including: research and extension, agronomic and grain quality management techniques.

3.3.2 Food Aid

Given the production constraints and declining yields within the maize subsector, food aid has become an important source of grain in order to meet domestic maize requirements. The United Nations system, which includes the Food and Agricultural Organization (FAO), Office for the Coordination of Humanitarian Affairs (OCHA), The United Nations Joint Programme on HIV/AIDS (UNAIDS), United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA),

[19] Zimbabwe Commercial Grain Producers' Association: Contact person: Richard Taylor (rtaylor@cfu.org.zw)

United Nations Development Programme (UNDP), World Food Program (WFP) and the World Health Organization (WHO), in collaboration with other non-Governmental Organizations (NGOs) and the Southern Africa Development Community (SADC), have been obtaining and implementing food aid programmes in the region to augment supply of grain and grain products. In 2008, according to the WFP, 327,338 tonnes of maize and maize meal had been delivered through programme aid and on an emergency basis.

3.3.3 Grain Storage and Trade

Zimbabwe's grain storage industry has been dominated by a pervasive GMB monopoly that emanated from the controlled marketing of maize and other grain commodities. In the 1980's, a country-wide network of silos was established as part of an expansion drive that was meant to absorb the previously marginalised communal farmers into mainstream grain markets. This established infrastructure has ensured the dominance of the GMB in grain storage. Currently, the nation's total storage capacity is estimated at 5 million tonnes. The silo grain storage consists of 10 main depots, with bulk grain being stored in grain complexes with a total storing capacity of 733 500 tonnes; while bagged grain can be stored at all depots on hard stands and in sheds with a capacity of taking up to 4 266 500 tonnes.

The deregulation of grain trade in 2009 has led to the emergence of key private players in the storage and trade sectors. Since the formal private grain storage and trade sector seems not yet fully developed, there are however key players that have been moving, storing and trading large volumes of grain over the past few years. The players are listed in the table below:

Table 9: Maize Grain Storage Industry Key Participants

Name	Contact	Phone	Email
Denote Enterprises	Artwell Mandivenga	n/a	amandivenga@denotegroup.com
Croplink	David Morgan	+26 3 712 601 075	croplink@samara.co.zw
Intergrain (Paperhole Investments)	Micky Rambo	+263 912 228 800	mrambo@inergrain.net
Staywell (Oregon corperation)	Robb Hoard	+263 912 235 565	rhoard@origen.co.zw
Grain Marketing Board	Bridget Mativivira	+263 912 469 258	mativivirab@gmbdura.co.zw

Source: BFAP/FAO Field Research 2009/2010

After the 1992 drought, a Strategic Reserve Policy (SRP) was in principle, briefly followed through the implementation of a strategic reserve policy which subscribed 500 000 tonnes of physical stock and 400 000 tonnes of monetary equivalent to fill the national human grain requirement of 900 000 tonnes as a measure to ensure consistent maize supply in the event of a droughts or other market shocks (Muir-Leresche and Muchopa, 2006). However, this storage policy, as was the case with other storage policies in the past, has been largely discretionary. This policy eventually became unsustainable in 1998 due to the escalating GMB debt. The current reserve stock policy however, stipulates that the GMB should hold a maximum of 936 000 tonnes (Sukume and Guveya, 2009). This policy has however been infeasible due to years of low production and foreign currency shortages have impeded efforts to import maize and replenish stocks. While the GMB did not acquire maize

imports in the 2009/10 trading season, it is reported that the board only managed to purchase 60 000 tonnes with carry-over stocks standing at around 45 000 tonnes from the 2008/09 trading season[20].

Deregulation in 2009 has put the state owned GMB silos under economic pressure to operate within a free market system, to compete with other grain storers and to have a lower throughput. The deregulated situation with multiple owners of stored grain means that a more sophisticated and cost effective administration and diversity of market information is required for efficient competition among private warehouses, GMB and on-farm storage. ZIMACE played a key role in this regard in the past and provided efficient and reliable storage, whilst GMB kept reserves to stabilise prices, food and feed supplies. Currently, the GMB is playing a marginal role in 'active storage', as the parastatal has been under-financed. Rather, the GMB rents out its infrastructure to traders for private storage purposes at bulk storage rates of US$0.10/tonnes/day and bagged grain is charged at US$0.15/tonnes/day. Although the volume of maize trade over the past 18 months in the private sector is not yet clear, it is believed that over 65% of volumes are now being stored and traded in the private sector. While larger millers have vertically integrated themselves to assume their own storage, they have also directly engaged private traders, with private storage prices offered by companies such as Croplink being generated through 'bids' and 'offers' in a free market.

Over the last couple of years, the dynamics of the maize market trade have shifted with an increase in the amount of stock traded in the informal sector. Anecdotal evidence suggests that a lot of economic activity is happening in the informal sector and unconfirmed but substantial maize stock is being produced, traded and consumed by households via hawkers, cross-border trade, village based transactions that at times are barter in nature. Informal markets such as Mbare Musika and other Urban and Rural Service Centres are the floors where large stocks are being moved and traded. Experts argue that the increasingly significant amount of maize that has been traded outside the formal market system needs to be included in the flow of stock, and these are illustrated in the extreme left wing of the value chain flow map where the informal sector trades outside the formal market channels. However, this brings a critically problematic issue of quantifying the amount of stock being traded in the informal markets which warrants the need for a separate study that specifically focuses on capturing this important component of the market.

3.3.4 Processing

Zimbabwe's secondary industry consists of dry and wet milling sectors. The dry milling sector is involved in the processing of maize to maize meal for human consumption and stock feed, while the wet milling sector is involved in beer manufacture. The dry milling sector is the dominant of the two industries. As mentioned at the beginning of the chapter, maize is processed into many other products and by products which are also used in the manufacture of other food products.

There are several key established and emerging industry players in the maize processing sector. Jayne and Rubey (1993) found that GoZ policy from the 1980's and during the early 1990's encouraged the development of a highly centralised system and large scale milling facilities that led to the establishment of large players over small hammer mills. The previous concentration in the milling industry occurred as a result of decades of the controlled grain marketing system. In the past, maize was transported to industrial millers and animal feeders. These large-scale buyers through license agreements were vertically linked to the GMB. During this time, unlicensed or "informal" traders and millers were typically restricted from procuring maize from the Board. This single-channel flow of grain from rural farms into the urban milling system provided preferential access to dominant large

[20] Personal communication with Mr Peter Chapangara, the GMB Processing manager

buyers and subsequently impeded the development of more small-scale players. As such, the processing sector was traditionally dominated by three main players which included Victoria Foods, Blue Ribbon Foods and National Foods among others who formed an oligopoly in the processing sector. Over time, the food grain processing and pre-mix sector saw the emergence of some additional players in response to the deregulation of the industry in the 1990's. A technical report prepared by Whitehouse and Associates (2003) previewed Zimbabwe's food and pre-mix industry and identified key players and these are outlined in table 10 below:

Table 10: Maize Milling Industry Key Participants

Name	Contact	Location & Email	Description	Ownership Structure
National Foods Ltd.	Jonathan Baker, Director of Consumer Products	Harare, Zimbabwe jonathanba@natfood.co.zw	Mills maize and wheat as well as produces cooking oils and fats. Its maize meal product range include Pearlenta (super-refined), Grits (input for brewers and snack-food producers), Samp, Mealie Rice, Roller Meal (both fortified and unfortified) Maize Mill Capacity in 2003 was 31600 tons. Current capacity is unknown, but estimated at 37.5% of usable capacity	Subsidiary of Tiger Milling, RSA and Anglo American, RSA
Blue Ribbon Foods	F.D. Njenje or M. Pfende	Harare, Zimbabwe brfoods@samara.co.zw	Established in 1981 and currently employees 289 workers. It operates two main mills in Harare, on for maize meal and the other for wheat flour. Other, smaller non-operating mills are located in Mutare, Chinhovi, and Bulawayo.	Blue Ribbon, RSA is the majority shareholder with 51% of all shares
Premier Milling, Division of Clearwaters Estates (Pty) Ltd	Mr. L. Uys	luysperm@mweb.co.zw	Produces Corn Soy Blend (CSB) and breakfast cereals	n/a
Makonde Industries (Pty) Ltd	Casper Mombeshora, Managing Director	Harare, Zimbabwe mkonde@africaonline.co.zw	The Company specialises in the production of CSB sold both commercially as well as being procured by some of the relief agencies like World Vision and CARE. CSB is produced for WFP and UNICEF. The company had 11 retail outlets in	n/a

Nutresco	Fidelis Mangondoza, Managing Director	Southerton, Harare, Zimabawe Nutresco@pci.co.zw	Manufactures CSB for various relief and development agencies and government departments. Maize and Soya are imported from South Africa, and sugar procured locally. Imported Roche vitamins are used.	n/a

Source: Whitehouse & Associates (2003)

An important player in the processing sector that was not included in the Whitehouse & Associates (2003) technical report is the GMB. The GMB has over the years played a key role in the processing sector since 1998 when the parastatal diversified into maize agro-processing activities, commodity trading, logistics, polythene bag and packaging manufacturing for its SILO range of products (which include SILO maize meal and samp). The strategic thrust of the GMB has been to provide affordable products to consumers in the low income bracket. However, the effective function of the GMB in this regard has been hampered by operational constraints brought about by the macro-economic environment and these include intermittent raw material supply shortages and inadequate funding. The contact details for the GMB are as follows;

- **The Grain Marketing Board (GMB)**
  - Address: Cnr Samora Machel and Enteprise road, Eastlea, Harare Zimbabwe
  - Contact person: Mr Peter Chapangara
  - Telephone: (263 912 133 242)
  - E-mail : chapangarap@gmbdura.co.zw

In January 2010, the industry mapping survey established that the milling sector had been transformed dramatically. Out of the 486 large to medium scale millers in Zimbabwe, 148 were from Harare province, 71 were from Bulawayo, 55 were from Mashonaland West, 49 from Masvingo, 44 from Mashonaland East and 38 from Midlands (see Appendix A on millers sampling methodology). Overall, the top ten millers (except one) come from the two main commercial provinces of Zimbabwe, Harare and Bulawayo, and Table 11 below displays the current list of Zimbabwe's largest millers.

Table 11: List of the largest private maize millers in Zimbabwe

Maize Millers	**Capacity (Tons/Hr)**	**Location**
National Foods Lts (Harare)	38	13 Foundry Road, Aspindale, Harare
Rainbow Foods	33.1	15 Ironbidge Donningon, Bulawayo
Basic Foods	27	78 Silver Crescent Kelving West, Bulawayo
Ilanga Foods	21.5	18 Market Road, Kelvin North, Bulawayo
National Foods Ltd (Bulawayo)	20	-
Blue Ribbon Foods	18	4 George Drive, Msasa, Harare
Maize for Africa	16	167 Chihombe Rd, Ruwa
Makonde Industries	15	Cnr Gyroen Rd/Martin Drive, Msasa, Harare
Simboti Millers	14	Lot No. 1 Off the Glen, Glen Forest, Domboshava Rd, Harare
Multifoods Milling Company	13.8	Farm 19 Holland, Bulawayo
Gwai Millers	12.4	6084 Western Triangle, Highfields, Harare

Source: Zimbabwe Grain Millers Association (2009), BFAP/FAO Survey, 2009/10

The combined effect of market deregulation and the easing of grain procurement processes in 2008 have seen a sharp increase in the number of both formal and informal millers. According to the Zimbabwe Grain Millers Association (ZGMA), there are more than 486 maize millers in Zimbabwe and the industry currently employs approximately 5 300 people. The average national milling capacity utilisation is estimated at 2.7 million tonnes/annum or 59.5 per cent of the available capacity. The potential capacity is in the order of 5 million tonnes/ annum. According to the ZGMA, twelve of their top millers have a combined milling capacity of more than 3 million tonnes/year, which is approximately 60 percent of total local capacity. It is difficult to estimate market shares of each of the big companies in the milling industry since this information is confidential. However, Table 11 above gives an indication of potential market shares based on milling capacity. In Appendix F, a list of top ten millers in each of Zimbabwe's provinces is displayed.

Large-scale millers like the GMB, National Foods and Blue Ribbon Foods usually perform agro-processing activities in conjunction with commodity trading, logistics, polythene bag as well as packaging manufacturing and sometimes agricultural support services as part of their integrated functions. The large- and medium-scale millers are mostly situated in the industrial sites of towns and cities. These do not cater for individual clients requiring their maize milled, but rather mill on a large-scale; selling refined and straight run maize meal to individuals, retailers, wholesalers in the formal markets. It is however not clear what the threshold that is used to differentiate between large scale and medium scale millers is. However, industry experts adjudge the large-scale millers to have an average milling capacity of about 15 tonnes/hr whilst the medium scale millers have a milling capacity of around 8 tonnes/hr. Products of large-scale millers are mostly packaged in well known brands whilst those of medium-scale millers are packed in unbranded packages. Medium-scale millers normally cater for small, informal retailers whilst the large-scale millers cater for established retailers. The small-scale millers are mostly situated around high density areas in major cities and towns and also in rural areas and cater for walk-in customers. These have a through-put of a bucket for every 3 minutes and can process at most 250-300 kg per day. It is believed that small scale millers (hammer mills) have, due to their density, location, proximity to communities and convenience, been taking a substantial though unconfirmed portion of the market. The maize that by-passes the formal market system is traded within and among communities and individuals and then milled directly by the small scale hammer millers who are now enjoying a large market share. Because most, if not all, large to medium scale millers are operating below capacity (due to a number of constraints, chief among them being liquidity constraints and low FDI), larger players are therefore not enjoying economies to scale. Hammer mills are thus enjoying a comparative cost advantage in the milling industry. On average, small scale-millers charge $1/bucket (a bucket is equivalent to 4.5kg) for milling straight run maize meal and $2/bucket for milling refined maize meal. It should also be noted that these prices are typically higher in the rural areas.

The range of processing equipment for maize milling is limited to manual and motorised shellers/threshers for cereals. Most of this technology is manufactured in Harare, Norton and Bulawayo with distribution networks in major cities, towns and Rural Service Centres (RSCs). Mhazo *et al*., (2007) documented the industry players involved in the manufacture of milling technology and pointed out that local industries have the capacity to manufacture complete shellers/threshers. Nonetheless, for motorised equipment technology, the electric motors and engine components have to be imported from South Africa and/or Asia.

In the processing/milling systems for maize, manual tools and machines are usually used by small-scale millers (mainly for communal farmers) while motorised equipment is generally used by large-scale millers. The technology that is being used by the large-scale, medium-scale, and small-scale millers depends on electricity, with the exception of small scale millers that are mostly in the rural areas that use diesel. Hence the persistent load shedding and power cuts by the Zimbabwe Electricity Supply Authority (ZESA) have adversely affected large scale milling capacity.

Processing Organisations

The Grain Millers Association of Zimbabwe (GMAZ) is the apex representation body of the grain milling industry in Zimbabwe. The organisation currently consists of 310 members nationwide who are engaged in the processing of maize, wheat, sorghum, soya, sunflower, millet, rice, nuts, salt and others. Products produced through the nationwide operations by its members also include maize meal, flour, oils, stock feeds, snacks and salt. The contact of the GMAZ is as follows:

- **The Grain Millers Association of Zimbabwe (GMAZ)**
  - Contact person: Mr Tafadzwa Musarara (Chairman of GMAZ and CEO of Agric Africa)
  - Address : 781 Willow Road Ardbennie, Harare Zimbabwe
  - Telephone : (263 4 661 646)
  - Cell : (263 912 125 955)
    : (263 712 422 731)
  - E-mail : musarara@gmail.com
    : ceo@agricafrica.co.zw

3.3.5 Retailing and Consumption

Zimbabwe currently utilises 5 000 tonnes of maize per day for human and commercial use, which translates to 1,825 million tonnes of maize per annum[21]. This estimate is close enough to the total sum of human consumption derived from the FAO and other NGO's (pegged at 120kg which suggests that human consumption is approximately 1.5 million tonnes) plus the Ministry of Agriculture, Mechanisation and Irrigation Development estimates that the feed use estimate for maize is approximately 350 000 tonnes per annum (MoAMID, 2010).

Table 12 below, provides a summary of the extraction rates of the various types of maize meal. Over 80% of all the maize meal sold in the Zimbabwe market is roller maize meal and this share is increasing. Super refined maize meal sales make up less than 20% of total sales.

Table 12: Extraction rates and Retail Maize Meal Prices by Production Region: December 2009 (USD/kg)

Type	Extraction rate	Surplus Production Region[22]	Deficit Production Region[23]
	(%)	(Average price/Kg)	(Average price/Kg)
Super Refined	62.5	0.48	0.54
Roller meal (Sifted)	88.7	0.36	0.40
Mugaiwa (Unsifted/Straight run meal)	98.7	0.23	0.27
Imported Maize Meal	Varies	0.32	0.33

Source: Zimbabwe Grain Millers Association (2009) and BFAP/FAO Retail Survey, 2009

Although an extraction rate of 62.5 percent is reported for super maize meal, some industry specialists regard this figure as "conservative". The best selling super refined maize meal brands include; Parlenta (Red Seal) and Ngwerewere (Blue Ribbon), which only had a 55 percent extraction rate. Nonetheless, the most the popular brands among the 'former' urban middle class and the poor is the (sifted) roller meal brands which include Chibataura (Blue Ribbon) or Red Seal roller meal, which is reported to have accounted for an average 60% of sales.

[21] Personal communication with Mr Peter Chapangara, GMB Processing Manager
[22] Harare, Mashonalad East, West, Central, and Manicaland
[23] Bulawayo, Matebeleland North, South, Masvingo and Midlands

Domestic markets for maize meal and other maize products have traditionally been dominated by wholesalers such as Mahommad Mussa, Bhadhella, RedStar and Jaggers. Retail supermarket chains such as TM, OK, SPAR, Gutsai and other smaller retailers are part of the Retailers Association of Zimbabwe (RAZ), chaired by Willard Zireva, the CEO of OK Zimbabwe. In December 2009, surveys of key urban centres within 6 provinces were conducted. The provinces included surplus producing natural regions of one, two, three; and provinces of deficit producing regions of natural regions four, five, and six. Within each province, three primary urban centres were identified and primary retail nodes surveyed[24]. From these surveys it was noted that most retailers are selling the locally made maize meal products that range from roller meal and super refined maize meal. Drawing from surveys undertaken across the country, imports were marginally cheaper than the locally made maize meal (see Table 12 above). Maize meal prices tended to increase as one moves away from the capital city, with prices being higher at the country's borders. This may have reflected high transport costs and other costs associated with getting the product from the point of manufacture, Harare, to the retail points at the border which are at least 250km from the capital.

The most popular brands were Red Seal, Victoria and Blue ribbon (Ngwerewere) brands. The volume of imports has visibly declined on supermarket shelves despite prices been comparatively cheaper. This is because local brands are more preferred by consumers than imported brands due to issues of traditional brand loyalty, as confirmed by a nationwide survey conducted in December 2009/January 2010. It was observed that the amount of imports increase as one moves towards southern Zimbabwe. This might be emanating from the fact that maize millers are mostly concentrated in Harare and also that the northern part of Zimbabwe is mostly the major maize producing area and as such the southern part has less locally made maize meal despite the recent liberalization of the grains sector.

As discussed in previous sections, it is important to reiterate that most maize meal consumed in both rural and urban areas is not coming from the formal sector, but rather from informal traders where it goes into households and then milled by hammer mills. Maize meal volumes coming through the hammer mills are yet to be determined with certainty because there is no current record of the number of hammer mills currently operational in Zimbabwe.

3.4 Price Formation

The transition to a deregulated environment has necessitated vast adjustments as grain producers, traders and processors are now able to trade in a 'free' market environment, responding to the forces of supply and demand in setting prices. In practice, they all look to the prices generated through the informal commodities market since a formal Futures Exchange commodity market has not yet been re-established following deregulation. It is expected that formal trading will soon be re-established through the previous Zimbabwe Agricultural Commodity Exchange (ZIMACE). It is not yet clear the benchmark or reference prices that traders ask or offer in the 'spot' market of daily trading in maize, but the assumption is that the world prices derived from SAFEX do play an important role, and to some extent, the GMB announced prices. The prices are being generated through 'bids' and 'offers' which are fundamentally reflecting the views of market participants on the prices of the maize and maize products at different dates. Without a formal platform for maize trading, market participants are facing increased price risks, and consequently, transactions costs. Inevitably, these costs are being passed onto the consumer in the form of higher maize prices and maize commodities.

An important recent development has been the influx of cheaper maize grain from Brazil, Argentina and South Africa which is zero rated in duty and tariffs, and industry experts argue that this has put downward pressure on domestic prices. In particular, raw grain imports and maize meal from South Africa has been duty free by virtue of being a SADC member (see Table 2).

[24] See Appendix B for sampling methodology

The fact that maize imports are attracting zero tariffs means that Brazilian, Argentinean, and South African free on board (fob) prices have become an important reference point for domestic market participants in their price discovery processes. Grain buyers are using the technique of quoting landed prices ex-Harare to select options between local or imported grain. To calculate the prices at which buyers can opt for between local or international grain, the market buyers use an import/export parity calculation. For example, if grain millers can buy imported maize (including the cost of transport, insurance, the tariff, the exchange rate, etc.) cheaper than locally produced maize, they will do so until local producers are able to supply maize as cheaply. This is called an import parity price, a regime at which Zimbabwe is currently operating in since the nation turned into a net maize importer in recent years.

The supply and demand factors that are currently affecting maize prices include weather conditions; consumer preferences; government policies, such as export bans and tariff applications; regional trade agreements, changes in living standards; market expectations; and technology[25]. In January 2010, the landed price for maize ex-Harare from Randfontein, South Africa was US$220/tonne while domestic farmers could only produce profitably at US$265/tonne. Local domestic maize selling prices are around US$300/tonne, making imports more attractive for millers relative to local grain.

While formal markets quote prevailing import parity SAFEX prices, the informal markets have been operating within localised and segmented rural and urban sub-markets that are devoid of sufficient market information from formal market trends. In fact, anecdotal evidence suggests that rural markets in particular, are operating under unique circumstances in which grain is being exchanged using barter trade due to some liquidity constraints that have been brought about by the multi-currency system. Because farmers in rural Zimbabwe have no access to foreign exchange, they have resorted to barter exchange as an alternative arrangement in which farmers use grain as a form of payment for goods and services.

3.5 Unpacking the Maize-to-Maize Meal Value Chain

A sound understanding of the dynamic functioning of the maize-to-maize meal supply chain requires the unpacking of the supply chain into four main nodes or levels, which can be identified in the maize meal chain. In order to accomplish this task a review and analyses of the marketing margins, price spreads and farm values is conducted.

3.5.1 Methodology

The prices of maize are captured at the four main nodes in the food chain namely: the GMB producer price (proxy for average maize producer price), the mill door price, the list price, and the consumer price. The GMB white maize and the consumer prices are actual prices that are captured and reported by the GMB and AGRITEX database respectively. The total costs of maize meal consist of the GMB maize producer price, transport costs, and processing costs, which are all reported data. Retail prices are taken from the Ministry of Agriculture, Mechanisation and Irrigation Development (MoAMID) AGRITEX database. The mill door price can be regarded as the most accurate price of raw material entering the food chain. The mill door prices and the list prices are calculated on the table by making use of available information on the costs of processing and distribution informed by industry experts as well as various assumptions. These assumptions are made to enable the estimation of a possible representative breakdown of the maize-to-maize meal supply chain. The key assumptions are as follows:

[25] See COMPETE Template in Appendix C for further details on tariff rates, non-trade barriers, and export banns

- The producer price (also known as the farm gate price) is derived from the GMB announced price.

- The transport costs from the farm gate to the nearest GMB silo were calculated as the average transport differential to all the major maize silos. It is important to note that these differentials were based on transport costs derived from average freight rates of logistics companies available in Zimbabwe. The current working average for freight rates is calculated at US$0.02/tonnes/km, which is derived from the US$2.00/Loaded km rates applied to farmers. This calculation is motivated by the fact that there has been a clear and gradual shift away from railway towards road transport. This would allow us to estimate costs that are a close reflection of the actual freight costs, although transport/distribution costs might probably be higher.

- Estimated average handling costs and storage day tariffs per tonne are reported by millers.

- Specific mill site costs are only available on an annual base. Therefore, the monthly mill site costs are kept constant for the year.

- The costs and the profit of retailers were estimated after discussions with various industry experts. For the purpose of this study, an estimated 3% mark-up on the retail price level of maize meal is given. Any possible rebates on large transactions were not taken into account.

3.5.2 Results and Discussion

A typical 'conservative' cost structure of the maize to maize meal value chain is profiled in the following section to highlight the value addition process in the processing of roller meal. The value chain breakdown shown in Table 14 merely shows the average of the aggregate industry structure of the value addition costs to maize as it leaves the farm.

Table 13: The Maize-to-Maize meal Value Chain

		Unit	Dec 2009
Farm Gate Price	**a**	**US$/Tonne**	**260.00**
Handling and Storage		US$/Tonne/day	0.10
Handling and Storage @ 30 day average	**b**	US$/Tonne	3.00
Freight rate		US$/Tonne/km	0.02
Transport costs @ 100km average	**c**	US$/Tonne	2.00
GMB Announced Price	**Sum(a;c)**	**US$/Tonne**	**265.00**
Procurement cost	d	US$/Tonne	265.00
Direct Costs			
Residues (20%)	e	US$/Tonne	53.00
Labour	f	US$/Tonne	23.37
Packaging	g	US$/Tonne	10.00
Consumables (Tickets and Thread)	h	US$/Tonne	2.00
Total Direct Costs	**i=Sum (e;h)**	**US$/Tonne**	**88.37**
Total Procurement Costs	**j = i + d**	**US$/Tonne**	**353.37**
Production Overhead Expenses			
Protective Clothing	k	US$/Tonne	4.55
Salaries	l	US$/Tonne	4.53
Repairs and Maintenance	m	US$/Tonne	2.00
Distribution expenses	n	US$/Tonne	8.40
Security	o	US$/Tonne	5.55
Depreciation	p	US$/Tonne	0.48
Insurance	q	US$/Tonne	0.20
Postage	r	US$/Tonne	0.05
Printing and Stationery	s	US$/Tonne	0.10
Telephones	t	US$/Tonne	0.10
Electricity	u	US$/Tonne	0.40
Advertising and Promotion	v	US$/Tonne	1.50
Admin Costs	w	US$/Tonne	2.79
Total Overhead Costs	**x =sum(k:w)**	**US$/Tonne**	**30.66**
Total Before Finance Charges	y = j + x	US$/Tonne	384.02
Finance Charges	Z	US$/Tonne	4.43
Total Costs - Breakeven price	aa = y + z	**US$/Tonne**	**388.45**
% Mark up		US$/Tonne	0.03
Break-even Price Cost price		US$/Tonne	388.45
Selling price: Mealie meal		US$/Tonne	400.00
Margin		US$/Tonne	11.55

Source: Own Calculations

The farm value, farm-to-retail price spread, farm value share of the retail price of maize, and the miller-to-retail margin appear in Table 14 below. The farm value is a measure of the return, or

payment, farmers receive for the farm-product equivalent of the retail maize meal sold to consumers. The farm value is the farm gate price (US$260/tonne) *(a)* which is calculated by subtracting from the GMB annual maize producer price the transport, handling and storage costs.

Table 14: Summary statistics of value chain calculations

	Units	**Dec-09**
Farm Value	US$/ton grain	260.00
Farm to Retail Price Spread of Maize (Roller Maize Meal)	US$/ton meal	128.45
Farm Value Share of Retail Price of Maize Meal (%)	%	66.93%
Miller to retail margin	US$/ton meal	11.55
Raw material share of retail price	%	63.62%
Conversion costs as percentage of Retail price	%	35.69%
Maize price (mill door) as percentage of Retail price	%	47.27%

Source: Own calculations

The farm value share is the proportion farmers get from the amount consumers spend on the market basket of food purchased in retail grocery stores. The farm value share is calculated by dividing the farm value (US$263.00) of maize by the retail price of maize (US$400.00). The results suggest that in December 2009 farmers received 65.75% of the amount consumers spend on the purchases of roller maize meal.

The miller-to-retail margin is calculated by deducting the total costs of maize meal (the costs of maize plus the conversion costs denoted as *a* in the table 12) from the retail (selling) price of maize. A miller-to-retail margin of US$11.55/tonne (US$400.00– US$388.45) is estimated for December 2009. Within this margin lies an enclosed range of different marketing and distribution systems with completely different cost structures and components. Therefore, the list prices may not be an accurate reflection of the true prices at which maize entered the food chain because most of the larger transactions within the system may be subject to a range of rebates and other trade conditions.

3.6 Constraints in the Maize Value Chain

3.6.1 Producers

According industry specialists interviewed, the problems in the maize industry are firmly rooted at the farm level. Productivity in the maize sector has been poor and uncompetitive and over the past five years the national average yield has been below half a tonne per hectare. These have been attributed to several factors which include:

- Government policies[26]. For example the lack of effective enforcement of SPS standards. The farming sector has therefore been characterised by poor quality grain commodities, emanating from the prevalence of substandard commodities on the grain markets, which at times forces the domestic supply base to be less competitive than higher quality grain imports.

[26] See COMPETE template in Appendix C

- A threat to national production has been cheaper maize imports. Landed price of maize from Randfontein South Africa is US$220/tonne, which is unsustainable for local farmers as they face increased input costs.
- High cost of transport.
- Low producer prices of grain commodities
- Limited access to market information from extension service;
- Unreliable supply of low-cost inputs (e.g. Seed, fertiliser and electricity) , these have resulted in high production costs relative to imports
- Limited access to appropriate packaging material for processed products, lack of marketing skills;
- Inadequate support services from training institutions, private sector consultants, small enterprise advisors and research institutions.
- Limited capacity to mobilise capital for equipment purchase and working capital.

3.6.2 Processors

- Both farmers and the manufacturers have been experiencing increased search/transaction costs due to a lack of a formal trading system that provides a platform for the interaction of buyers and sellers. Both parties may derive benefit from engaging each other in formalised trading e.g. through futures contracts.
- It was noted that in the last few years large scale systems were experiencing an increased loss of business whilst on the other hand the processing industry was becoming dominated by small and medium scale operations.
- Zimbabwe's large scale millers are running below capacity due to the prevailing shortage of capital raw material equipment, lack of investment and foreign currency (for example National Foods currently operates at 37.5% of their existing capacity).
- Technology for milling could be improved in some large milling companies. Improved technology improves the production efficiency that will result in low costs of production
- Shortage of active commodity brokers.
- Poor data on national grain stocks
- Quality of grain generally Grade B
- Poor producer prices due to imports
- Most of the farm land is inaccessible

3.7 Conclusion and Recommendations

Given the findings of this study, there is a clear need to develop sustainable strategies that involve the government, banks, processors and maize growers in order to increase the production base of the maize subsector. In that regard, the following recommendations have been identified as being necessary and sufficient towards that end. They include;

- The link between farmers and the markets needs to be strengthened through the establishment of a Futures Exchange that will provide farmers with a hedge against risk as well as reduce transactions/search costs between farmers and maize traders.
- Land disputes should be settled in a way that resolves ownership wrangles by establishing clearly defined and enforceable property rights that promote investments,
- Revise the Genetically Modified Organism (GMO) policy and possibly consider introducing GM maize production into the sector as an option to augment and promote local production
- Regulate imports and revise the duty regime currently in place
- Reliable supply of low-cost inputs (e.g. Seed, fertiliser, water and electricity)
- Ensure availability of electricity for milling operations

- Improve technology through research and development
- Increase irrigation capacity and refurbish available irrigation facilities
- Improve farm level financing
- Capacitate the GMB through adequate financing to enable it to play its role effectively
- Promote the intensive production of small grains in the short to medium term

4. WHEAT SUBSECTOR VALUE CHAIN ANALYSIS

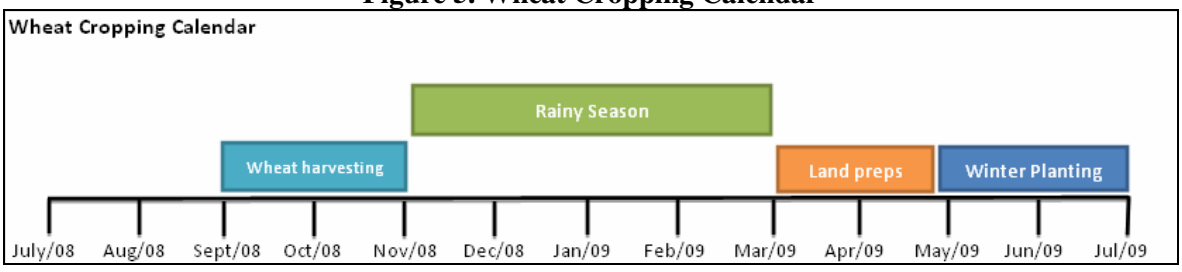
4.1 Introduction

Wheat is the second most important grain crop after maize, with the combined contribution to daily caloric intake in excess of 50% . Wheat is a key staple crop, consisting of 20% bran which can be sold to bakers as wheat bran or to stock feed millers. The main wheat products include flour, semolina, and break wheat, with most Zimbabweans mainly using bread and flour products for everyday consumption. However, Zimbabwe is a net importer of wheat owing to slightly unfavourable agronomic conditions. Nonetheless, with earlier advances in biotechnology and seed breeding over the years domestic production managed to achieve 62% of wheat requirements from locally grown wheat (MoAMID, 2007). It should be noted however, that the local wheat quality is not suitable for bread flour therefore adequate and suitable qualities of flour can only be achieved after a certain proportion of hard wheat is imported to improve the gristing qualities of the local wheat product. In fact, millers say that Zimbabwe requires 80% foreign wheat and 20% local wheat for making of flour that is suitable for bread making.

4.2 Production Background and Policy Environment

All commercial wheat produced in Zimbabwe is grown under full irrigation during winter as shown below in the wheat calendar (Figure 5). Wheat production takes place in the winter months from May to August of every year, with deliveries to markets normally taking place anytime from September to February. Land preparation usually takes place just after the rainy season from March to May.

Figure 5. Wheat Cropping Calendar

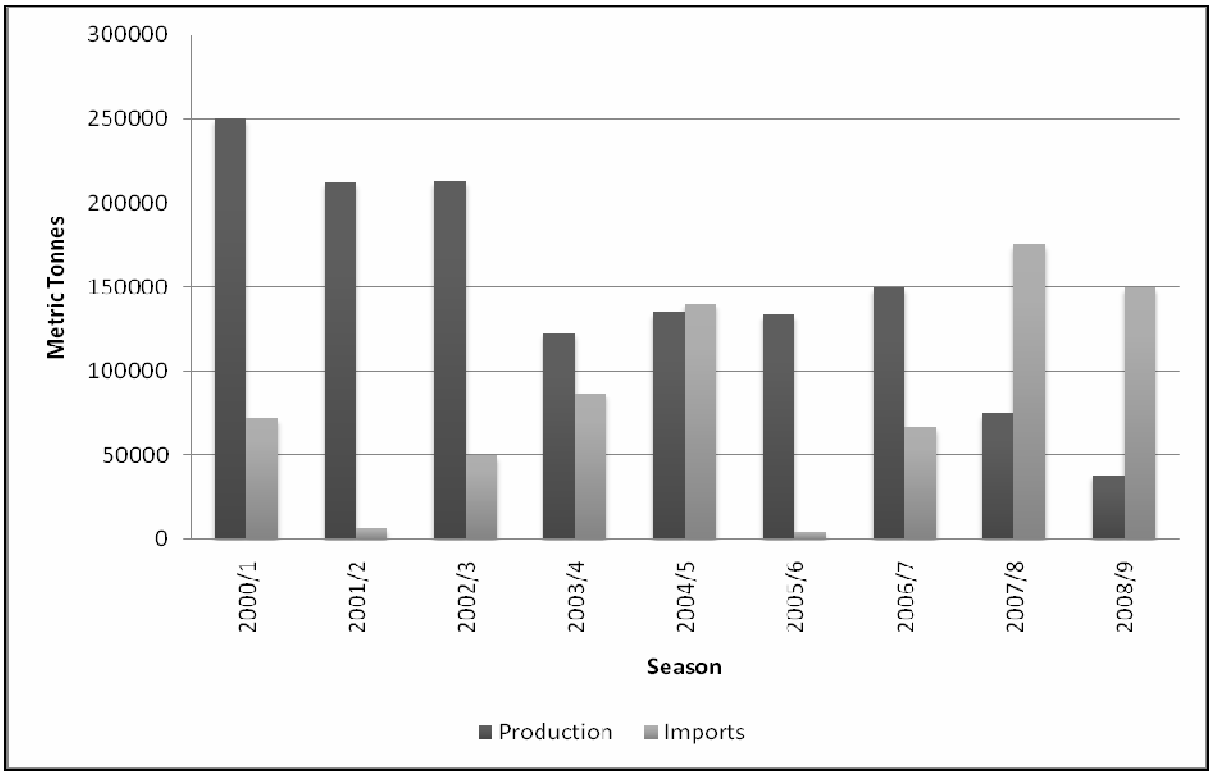


Small scale farmers in wet lands have also been involved in marginal wheat production at a subsistence level. Production, depending upon the availability of water, has varied from year to year. In recent years however, the number of wheat farmers in Zimbabwe has dwindled owing to production constraints that include lack of credit, infrastructure such as irrigation equipment, electricity power cuts, and lack of inputs. Unprofitable wheat producer prices and lack of tenure and uncertainties caused by land displacements of the land reform programme are also key contributory factors.

Reasonable amounts of wheat have been produced in the past, due to intensive initial research that led to a tremendous shift in output from 81,000 tonnes in 1966 to over 203,000 tonnes in 1978. The highest output attained was 325,000 tonnes in 1990 whilst the lowest production was 18,500 tonnes in 2008. In the past 6 years the national average production was 152,870 tonnes. There has been a slight

increase in wheat production over the years in question, with a general increment of 5% per annum recorded in production from 2003 to date. Nonetheless, Zimbabwe is not self sufficient in wheat production and wheat imports constitute the major component of the country's grain imports. Over the past ten years there has been a decline in the level of wheat output due to the disruptions in winter wheat production resulting from the on-going land reforms. During the decade, wheat production peaked in 2000/01, reaching an output of 250,000 tonnes. Wheat production has not gone beyond 150,000 tonnes since 2003/04, with output declining to 75,000 tonnes and 38,000 tonnes in 2007/08 and 2008/09 respectively. These production estimates are against Zimbabwe Grain Producers Association (ZPGA) estimates which point out that wheat production has been 25,000 tonnes and 18,500 tonnes in 2007/08 and 2008/09 seasons respectively. Figure 6 below shows the relative amounts of production of wheat and imports from 2000/01 to 2008/09.

Figure 6. Wheat Production and Imports: 2000/01 to 2008/09



Source: AIAS (Various Issues)

Wheat production in the 1990's averaged 219,300 tonnes and imports were an average 81,531 tonnes (see Appendix E). Over the past two seasons, imports constituted a relatively larger proportion of wheat supply. In 2007/08, wheat imports were 175,000 tonnes compared to 75,000 tonnes produced. This means that total production was only 30% of the total wheat available. The 2008/09 season was much worse, local production fell to 38,000 tonnes, about 20% of the total wheat available within the market.

The wheat sector has been severely affected by the land reforms, because traditional wheat growers have been displaced and replaced by inexperienced, resource poor farmers. Efforts over the past decade to capacitate the land beneficiaries and push for increased wheat production have not been successful. The destruction of irrigation equipment during land invasions has contributed to the decline in wheat area and yield. Irrigation capacity currently stands at 45,000 ha and yet Zimbabwe has the potential to raise its irrigation capacity to 120,000 ha. Other farm level production constraints include high input costs, electricity shortages which have become more severe, and high cost of

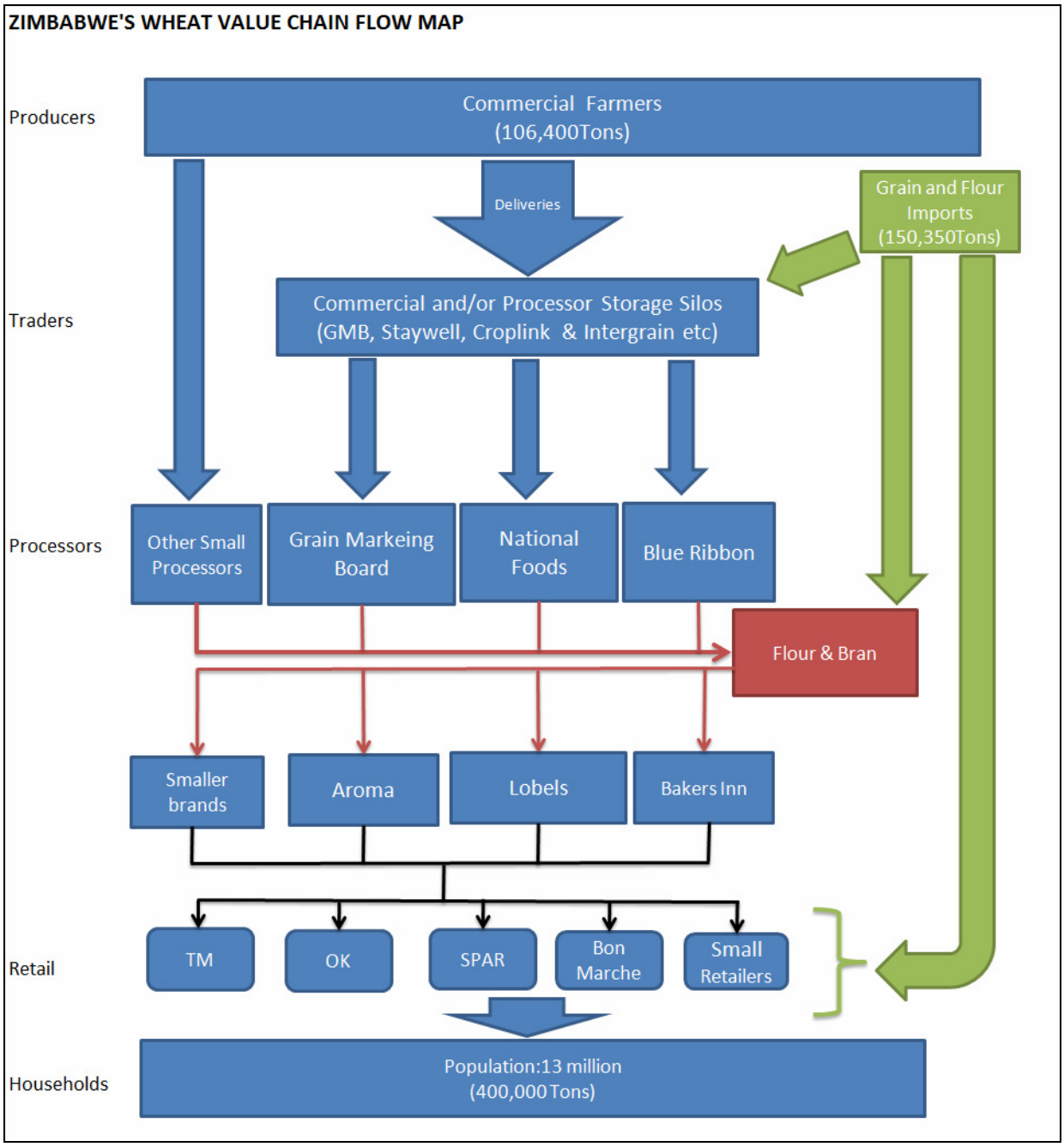
borrowing that have hindered an expansion of the wheat production base. Since wheat is technically demanding, these constraints have militated against land preparations and crop management to the extent of significantly declining yields and output.

Interventions by the Government of Zimbabwe (GoZ) through the Reserve Bank of Zimbabwe (RBZ) and public institutions towards agrarian support meant to increase wheat production have had an insignificant impact on grossed national wheat levels. Controlled markets against hyperinflation have in the past led to unsustainable net farm incomes that have limited the farmer's capacity to access adequate resources to produce. As a result, this has compromised efficiency of production.

4.3 Wheat-to-Bread Value Chain Analysis

Presented below is the wheat to bread value chain map, which illustrates the pathways and role players that are involved in the value addition to wheat. The volume data presented represents a five year annual average between 2004 and 2008. In the case of grain movement between the Traders/Storage sector and the retail sectors, due to the lack of transparency and data availability, volume estimates were unable to be calculated.

Figure 7: Zimbabwe Wheat Grain Flow Diagram: Annual Averages: 2004 - 2008



4.3.1 Producers

Like the maize sector, the wheat sector is represented at various levels by farmer associations which include the Commercial Farmers Union (CFU) through the Zimbabwe Commercial Grain Producers Association (ZCGPA) and The Zimbabwe Farmers Union (ZFU). Their contacts are summarized below:

Table 15: Wheat (and Maize) Farmers Associations

Name	Contact	Phone	Email
Zimbabwe Commercial Grain Producer's Association	Richard Taylor	+26 3 4 309 800	rtaylor@cfu.org.zw
Zimbabwe Farmers' Union	Theresa Makomva	n/a	tmakomva@zfu.org.zw

Source: BFAP/FAO Field Research 2009/2010

As in the maize sector, the Zimbabwe Commercial Grain Producers Association (ZCGPA) represents the large-scale commercial wheat producers belonging to the Commercial Farmers Union, which has approximately 500 members. The Association's aims and objects are to promote, advance and develop the production of grain in Zimbabwe and to advance and protect the interests of all sections and classes of producers of grain. While the ZCGPA under the CFU represented large-scale commercial farmers, the ZFU represents largely black smallholder farmers. According to land reform program the large-scale commercial farmers are those with at least 250 hectares of land. The functioning of the CFU are currently not yet clear with recent and on-going developments of continued land invasions that have severely depleted the number of white commercial farmers left.

4.3.2 Storage and Traders

The Grain Marketing Board (GMB) owns most of the facilities used for wheat storage. As has been pointed out for the maize sector, wheat storage has been dominated by the GMB, with a few exceptions where farmers have capacity for on-farm storage. With deregulations of the grain markets, private buyers have been renting GMB facilities for charges ranging from US$0.10 to US$0.15/tonne/day. Recently, private commercial storage has been offered by private players such as Denote Enterprises, Croplink, Staywell and Intergain (Paperhole Investments) who also offer concessionary arrangements with buyers and sellers of grain. The ownership structure of these private institutions has not been divulged, but they seem to be farmer-owned entities that have a clear and strategic function that is based on industry knowledge. Key players in the storage industry are the same firms involved in maize grain storage (see Table 9).

4.3.3 Processors

Currently, there are 38 enterprises involved in the wheat processing sector, consisting of 9 that are backed by foreign investment. The nation's total wheat processing capacity stands at an estimated 189 tonnes/hr which is sufficient to mill over 400,000 tonnes/year of flour. Important players in wheat processing are also found in the maize milling and these include big buyers and big international grain

traders such as National Foods Private Limited, Blue Ribbon Foods Limited and Victoria Foods Limited. Below is a list of all the wheat millers found in Zimbabwe.

Table 16: Wheat Millers in Zimbabwe

SERIAL	MILLER'S NAME	CAPACITY PER HR (TONNAGE PER HR)	ADDRESS
1	National Foods	34	10 Stirling Road, Workington, Harare
2	National Foods	19	Basc St 13th st Bulawayo
3	Blue Ribbon Foods	18.75	4 George Drive, Masasa, Harare
4	Victoria Foods	6.5	Std No.771 Trafford rd Gweru
*5	Walezim Investments	6.3	34 James Martin Drive, Lonchinvar, Harare
6	Victoria Foods	6	83 Woolwich, Willowvale, Harare
7	Rize Milling Company	5.4	Box 252, Banket
*8	Dilcrest Enterprises P/L	5.2	91km peg Harare Chinhoyi Rd Banket
9	Claylot Investments	5	Shamva Road
*10	Pluplon Investments	4.2	106 Coventry Road, Workington, Harare
11	Claylot Investments	4.5	7km peg Harare - Shamva Road
*12	Pairnex Foods	4.2	69 Douglas Road, Workington, Harare
13	GMB Mills	4	
14	Kuwadzana Millers	4	Tynwald, Harare
*15	Jing Feng Enterprises	3.7	8 Warwick Road, Chegutu
16	Manyame Milling	3.6	70 Houston Cross, Marondera
17	Bakers' Best (Chiseller Services)	3	Stand No. 84 Manchester Road, Chinhoyi
18	Nutresco	3	90A Simon Mazorodze, Harare
*19	Beluki Investments (Pvt) Ltd	3	61 Birmingham Rd, Southerton, Harare
20	Broadhavens	2.8	5km Road Port, Harare
21	Simboti	2.7	Lot 1 of the Glen Forest, Domboshava
*22	Overeast Investments	2.6	Bay 3 Bak storage Complex, along Beatrice road
23	Central Milling Company	2.5	Stand No. 4, Smith Street, Kadoma
24	Strong Bread Bakery	2.5	Disi Farm, Mvurwi
25	Claylot Investments	2.1	Hurudza Farm, 7km peg, Harare
*26	Deplaat Investments Pvt Ltd	1.9	StdNo. 1204, 23d Road
27	Crewsh Investments	1.5	12 Edson Crescent Paulington Mutare
28	Macsherp Milling	1.5	
*29	Linebay	1.36	8 Paisely Road Workington, Harare
30	Gumbas Milling	1.25	No. 1, Leopold Takawira Street, Harare
31	Folay Investments	1	26 Whitesway Msasa
32	Turzen	1	J. Chinamano Rd, Belmont, Bulawayo
33	Mahari Sunset	0.9	279 Chiremba Road, Hatfield
34	Muungwe Milling	0.625	615 off willos Road, Rusape
35	Grindsberg Investments	3.5	Stand No19279 Crn Coventry and Harare Dr,Workington
36	Breakfast Foods	10	37 Coventry Rd Workington
37	Ammar Foods/Ladka Enterprises	6	106 Coventry Road, Workington, Harare
38	C.K.P Milling	0.4	Std 19184 Tilco Industries,Chitungwiza
	TOTAL	**189.485**	
	NB * FOREIGN INVESTORS		

Source: GMB, Zimbabwe Grain Millers Association (2009)

Previous concentration in the wheat milling industry, just like in the maize sector, had arisen naturally from the many years of the GMB controlled marketing system. In the past wheat was transported to industrial millers and animal feeders under the controlled set-up in which large-scale buyers/processors became, by regulation, vertically linked to the GMB. The combination of movement controls and selective access to the boards' wheat stocks effectively reserved the bulk of the wheat for large industrial millers, distributors, and retailers in the official marketing channel, which consequently ensured an oligopoly wheat market.

The current free unregulated market forms a conducive environment for the growth and proliferation of small to medium scale players most of whom have been sourcing grain directly from farmers through contracts. Emerging small to medium scale players include CKP milling in Chitungwiza, Muungwe Millers in Rusape, Turzen in Bulawayo and Forlay Investments in Harare. With little government intervention, it is expected that the industry will grow, and the pace of growth will largely depend on availability of credit lines for the sector.

4.3.4 Wheat Industrial Associations

The wheat industry is represented by two main organisations at the industrial processing level. These included The Zimbabwe Commercial Grain Producers' Association (ZCPGA) and the National Bakers Association of Zimbabwe (NBAZ).

The commercial grain producers are mainly entering the industrial stage because they lobby not only for production incentives at farm level, but also for marketing of the crop to the processors. The NBAZ on the other hand has played a critical role in lobbying for the interests of the bakers, particularly with regards to processing costs and retail prices during the period in which government instituted controls in the sector. The contact for the association is:

- **National Bakers Association of Zimbabwe**
  - Chairman: Armittage Chikwavira
  - C/o Confederation of Zimbabwe Industries
  - Address : 31 Josiah Chinamano Avenue. P 0 Box 3794, Harare
  - Tel: +263 4 251490/99
  - Fax: +263 4 251489
  - E-mail: info@mail.czi.co.zw

4.3.5 Retailing

The retail sector consists of wholesalers, retail supermarkets and restaurants. The main wholesalers include Mahommad Mussa, Bhadhella, RedStar and Jaggers. These are based in major cities throughout the country. Supermarkets which include TM, OK, Spar and other smaller retail chains such as Friendly Supermarket are found in major cities and smaller towns and suburbs throughout the country. The supermarkets have been engaging in importation of flour during the period in which Zimbabwe faced severe food shortages and these imports played a crucial role; however, data on trade volumes has not been readily available.

A survey undertaken across the country revealed that imports were slightly more expensive as compared to the locally produced brands. Below is a table showing the average prices of the flour products from across the country. The most popular flour brands include Gloria, Bakers pride, Victoria and Blue Ribbon. The survey also unpacked that there is an increase in popularity for the retail brands such as Pot O Gold and TM Super Saver which are less costly than the other brands. From informal interviews with customers it was found that customers prefer imported brands which are said to be of better quality than the local products. However, the imports are scarce in the local retail shops, and this partly is due to the stringent import requirements as discussed in section 2.

Table 17. Comparative Analysis of prices: December 2009

Flour types	Average price/ Kg
Average self raising Price per kg	$0.93
Average plain raising Price per kg	$0.95
Average cake flour raising Price per kg	$1
Average imports self raising Price per kg	$1

Source: BFAP/FAO Retail Survey, 2009

The average bread price in the shops was found to be $1.21 per kilogram. However, on close scrutiny of the available bread brands it was found that the majority of the bread weighed around 500grams

whilst a few established brands weighed 750grams. The most popular bread brand was Bakers Inn which was found in the large urban centres.

4.4 Price Formation

Since 2001, the wheat sector has been subject to price controls, trade licensing requirements, and/or government sponsored procurement or logistic restrictions. The government, from 2001 to 2008, employed a post pricing determination strategy in a traditional pricing mechanism framework of a "cost based approach" plus margins ranging from 20-30 percent. The recent deregulation of the entire agricultural industry in 2009 represented a shift away from a decade long controlled marketing system to more sustainable free market reforms. The transition of the wheat sector to a free market environment has however necessitated vast adjustments. The situation on the ground suggests that market actors all look to the prices generated through the 'bids' and 'offers' on the open market. Although currently, there is not a formal Futures Exchange commodity market, it is expected that ZIMACE will be re-established, which will formalise trading and cut down on search/transactions costs.

The position of Zimbabwe as a net importer of wheat means that trade policies (particularly duty and tariff regimes) have a key influence in the determination of domestic prices. ZIMRA (2009) tariff rates reveal that basic unprocessed wheat is operating at zero tariff rates which will act as an essential instrument in augmenting wheat supplies in future (see Table 3).

Tariff rates shown in table 3 above mean that Zimbabwe's domestic wheat markets are not necessarily affected by tariffs, but rather non-tariff barriers. Nonetheless, the implication of zero tariffs means that the behaviour of market participants is largely guided by world prices, or more specifically, SAFEX market prices, which seem to be playing an important role rather than signals coming from the GMB announced prices. This current season, the GMB has announced a wheat producer price of US$400/tonne. However, private market prices are at the import parity price of US$377/tonne. Despite the GMB offering an attractive price, farmers will however prefer trading with private traders because the GMB has in the past been unable to pay farmers in time owing to the poor financing of the Board. In private trading arrangements, the prices for future contracts and options are being generated through 'bids' and 'offers' which are fundamentally reflecting the expectations of market participants on the prices of the specific wheat and wheat products at different dates in the future.

As with maize, one of the most important recent developments on the domestic wheat markets has been the influx of relatively inexpensive wheat from Brazil, Argentina and South Africa which has out-competed local producers. Typically, grain buyers use the technique of quoting landed prices ex-Harare to select options between local or imported wheat. To calculate the prices at which buyers can opt for between local or international wheat, the market buyers use an import parity calculation. The wheat import parity price, a regime at which Zimbabwe's wheat market operates since it is a net wheat importer, is being quoted at an average price of US$377/tonne ex-Harare. This is far cheaper considering that imported wheat is of higher quality than domestically produced wheat, which is not being graded according to GMB prescriptions (see Section 2).

4.5 Unpacking the wheat-to-flour Value Chain

The dynamic functioning of the wheat-to-flour supply chain requires the unpacking of the supply chain into four main nodes or levels, which can be identified in this food chain. This part of the report is organised into two sections, beginning with the presentation of the unpacked supply chain, including methodology, definitions and general discussions of the results; and the second section provides a specific review and analyses of the marketing margins, price spreads and farm values.

4.5.1 Methodology

The prices of wheat are captured at the four main nodes in the food chain namely: the GMB producer price (proxy for average producer price), the mill door price, the list price, and the consumer price. The GMB wheat and the consumer prices are actual prices that are captured and reported by the GMB and the CSO database respectively. The mill door prices and the list prices are calculated on the table by making use of available information on the costs of processing and distribution informed by industry experts as well as various assumptions. These assumptions are made to enable the representation of a possible representative breakdown of the wheat-to-flour supply chain. These include:

(1) The producer price (also known as the farm gate price) is derived from the GMB announced price.

(2) The transport costs from the farm gate to the nearest GMB silo were calculated as the average transport differential to all the major silos. The current working average for freight rates in calculated at US$0.02/tonne/km, which is derived from the US$2.00/Loaded km rates applied to farmers.

(3) The handling costs are based on answers from millers on their estimated average handling costs and storage tariffs per day per tonne. The storage period according to farmers interviewed, is 30 days on average. It is assumed that the millers are closer to the silos than the farmers.

(4) Specific mill site costs are only available on an annual base. Therefore, the monthly mill site costs are kept constant for the year.

(5) The costs and the profit of retailers were estimated after discussions with various industry experts. For the estimation purposes, a 10%, 15% and 20% mark-up on the retail price level of flour is given as a reasonable profit level across regions. In general profit margins tend to be higher in deficit producing regions vs. Surplus regions. Any possible rebates on large transactions were not taken into account.

4.5.2 Results and Discussion

A typical ‘conservative’ cost structure of the wheat to flour value chain is profiled in the following section to highlight the picture in the manufacture of low-priced bread. As shown below, the wheat-to-flour value chain structure is outlined such that the value added at each stage of the value chain is established.

Table 18: The Wheat-to-Flour Value Chain in January 2010

		Unit	Jan 10
Farm gate price	a	US$/Tonne	324.38
Handling and Storage		US$/Tonne/day	0.10
Handling and Storage (@ 30 day average)	b	US$/Tonne	3.00
Freight rate		US$/Tonne/km	0.02
Transport Costs (@ 100km average)	c	US$/Tonne	2.00
GMB Price	**d = a+b+c**	**US$/Tonne**	**329.38**
Procurement cost	d	US$/Tonne	329.38
Direct Costs			
Residues (30%)	e	US$/Tonne	98.81
Labour	f	US$/Tonne	4.78
Packaging	g	US$/Tonne	8.00
Consumables (Tickets and Thread)	h	US$/Tonne	1.00
Depreciation	i	US$/Tonne	0.12
Electricity	j	US$/Tonne	0.06
Total Direct Costs	**k = sum(e:j)**	**US$/Tonne**	**112.78**
Production Overhead Expenses			
Repairs and Maintenance	l	US$/Tonne	2.00
Transport	m	US$/Tonne	4.20
Uniforms	n	US$/Tonne	0.40
Advertising and Promotion	o	US$/Tonne	1.50
Telephones	p	US$/Tonne	1.00
Security	q	US$/Tonne	0.57
Stationery	r	US$/Tonne	1.00
Salaries	s	US$/Tonne	1.70
Admin Costs	t	US$/Tonne	1.24
Indirect Overheads Total	**u = sum(l:t)**	**US$/Tonne**	**13.61**
Total Cost of Flour Before Finance	**v = d+k+u**	**US$/Tonne**	**455.76**
Finance Charges	w	US$/Tonne	10.56
Breakeven price incl. Packaging	**x = r+w**	**US$/Tonne**	**466.32**
Mark up @ 10%	**y**	**US$/Tonne**	**512.95**
Mark up @ 15%	**z**	**US$/Tonne**	**589.90**
Mark up @ 20%	**aa**	**US$/Tonne**	**615.54**

Source: Own Calculations

Different mark up levels are displayed in table 18 to show the different price levels that retail shops use depending on particular market segments. Because a greater part of the population in Zimbabwe is classified as poor, the most relevant mark up price is @ 10% level. Thus, at this price, the processor's margin is approximately US$183.57/ton.

The farm value, farm-to-retail price spread, farm value share of the retail price of flour, and the miller-to-retail margin appear in table 19 below. The farm value captures the return, or payment, farmers receive for the farm-product equivalent of the retail flour sold to consumers. The farm value

for wheat (shown in table 18 as the farm gate price of US$324.38/tonne (denoted as *a*) is derived from the GMB announced price.

Table 19: Summary statistics of Wheat Value Chain calculations

		Units	Dec-09/Jan-10
Farm Value	a	US$/tonne grain	324.38
Farm to Retail Price Spread of Flour (Low-priced Flour)	y-a	US$/tonne flour	188.57
Farm Value Share of Retail Price of Flour (%)	(y-a)/y	%	63.24
Miller to retail margin	y-x	US$/tonne flour	183.57
Raw material share of retail price	(x-d)/f	%	26.78
Conversion costs as percentage of Retail price	k/y	%	21.99

Source: Own calculations

The farm-to-retail price spread is the difference between the farm value and the retail price. It represents payments for all assembling, processing, transporting, and retailing charges added to the value of farm products after they leave the farm. The farm-to-retail price spread for flour in January 2010 was US$141.94/ton. The farm value share is the proportion farmers get from the amount consumers spend on the market basket of food purchased in retail grocery stores. The results suggest that in December 2009 farmers received 63.24% of the amount consumers spend on the purchases of wheat.

4.6 Constraints in the Wheat Value Chain

4.6.1 Producers

As in the maize sector, the problems in the wheat industry are firmly rooted at farm level. Productivity in the wheat sector has been poor and uncompetitive[27]. From field work findings, several challenges were discovered, these include:

- A threat to national production has been cheaper wheat imports which have zero tariff charges. Landed wheat price ex-Harare from Randfontein South Africa was ranging from US$350/Tonne to US$368/Tonne in December 2009, which is unsustainable for local farmers as they face increased input costs. While the GMB pegged the price at US$400/Tonne, they however have no financing to pay farmers that price.
- The link between farmers and the markets needs to be strengthened through the establishment of a Futures Exchange that will provide farmers with a ready market for their wheat.
- Erratic supply and increased cost of fertiliser, water and fuel coupled with frequent electrical power cuts as well as inadequate irrigation systems;
- Limited access to working capital and difficulties in accessing agricultural finance emanating from unfavourable borrowing conditions;
- Lack of commercial farming skills due to inadequate training in production and crop management emanating from poor extension services and therefore limited transfer of technology from research.

[27] Personal communication with Richard Taylor, Crops Manager, Commercial Farmers Unions

4.6.2 Processors

- Both farmers and the manufacturers have been experiencing increased search/transaction costs due to a lack of a formal trading system that provides a platform for the interaction of buyers and sellers. Both parties may derive benefit from engaging each other in formalised trading e.g. through futures contracts.
- Establishment of an effective quality grading system for domestically produced
- Improved processing technology in order to increase production efficiency lower costs
- Lack of Foreign Direct Investment (FDI), and limited access to financing.
- There is a general shortage of active commodity brokers.
- There is poor data on national grain stocks
- The quality of wheat is generally Grade B
- Producer prices are depressed due to imports.
- Most of the farm land is inaccessible.

4.7 Conclusion and Recommendations

The recent deregulation of the entire agricultural industry in 2009 represented a shift away from a decade long controlled marketing system to more sustainable free market reforms. The transition of the wheat sector to a free market environment has however necessitated vast adjustments. Wheat producers, traders and processors now respond to the forces of supply and demand in setting prices. Within this context, government policy aimed at establishing comprehensive grades and quality standards, enforceable property rights, and infrastructure investment are a necessary condition to ensure an efficient and well-functioning wheat value chain. Specifically, government needs to look at key priority areas which include the development of irrigation schemes, irrigation infrastructure and strengthening of institutional mechanisms in the development of a robust irrigation sub-sector. This involves the creation of a conducive environment for private sector participation.

5. SOYBEAN SUBSECTOR VALUE CHAIN ANALYSIS

5.1 Introduction

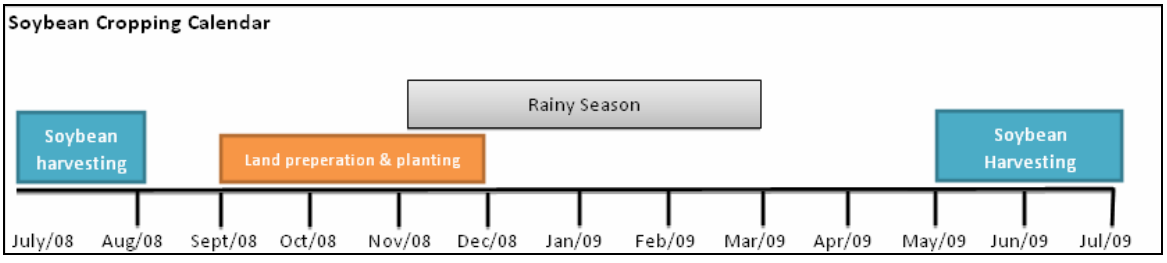
Soybean is generally perceived as a high value crop, and its value is underlined by the crop's significance in terms of an important source of protein for both livestock and human populations. The popularity of soybean is also generally attributed to its multi-purpose benefits as a cash and food crop, making its associated production, processing, consumption, and marketing activities much more lucrative. The crop's nitrogen fixing abilities make it a perfect rotation option with crops such as maize and wheat as it reduces input costs and therefore capital requirements for resource constrained farmers.

Aside from the seed itself, soybean is used to produce a variety of high-value marketable products which include, soybean cake (stock feed), soymilk, soy yoghurts, soy flour and soybean oil. Most of the soybean produced in Zimbabwe is however, primarily used in oil expression. In Zimbabwe soybeans contribute 30% of all the cooking oil production while cottonseed contributes 50% (GoZ, 2008). Approximately 95% of all soybean seed produced in Zimbabwe is destined for the processing industry for the production of soybean oil. Soybean oilcake (also referred to as meal), a by-product of the oil extraction process, is sold to feed manufacturers domestically and in the region (particularly South Africa). Soybean cake is an important protein source for livestock, particularly in the poultry and piggery sub-sectors. Soybean cake extracts can also be used in the manufacture of consumables such as soy-chunks. Another important by-product of the soybean extraction process is the gams which contains lecithin used in the manufacture of bread.

5.2 Production Background and Policy Environment

Although unsubstantiated, estimates place the number of producers as roughly equivalent to that of maize farmers given diversification and crop rotation practices within Zimbabwe. As shown in the Figure 8 below, soybean is planted during the months September to December, just before and during Zimbabwe's main rainy season. Harvesting and marketing of the crop takes place anytime between May and August.

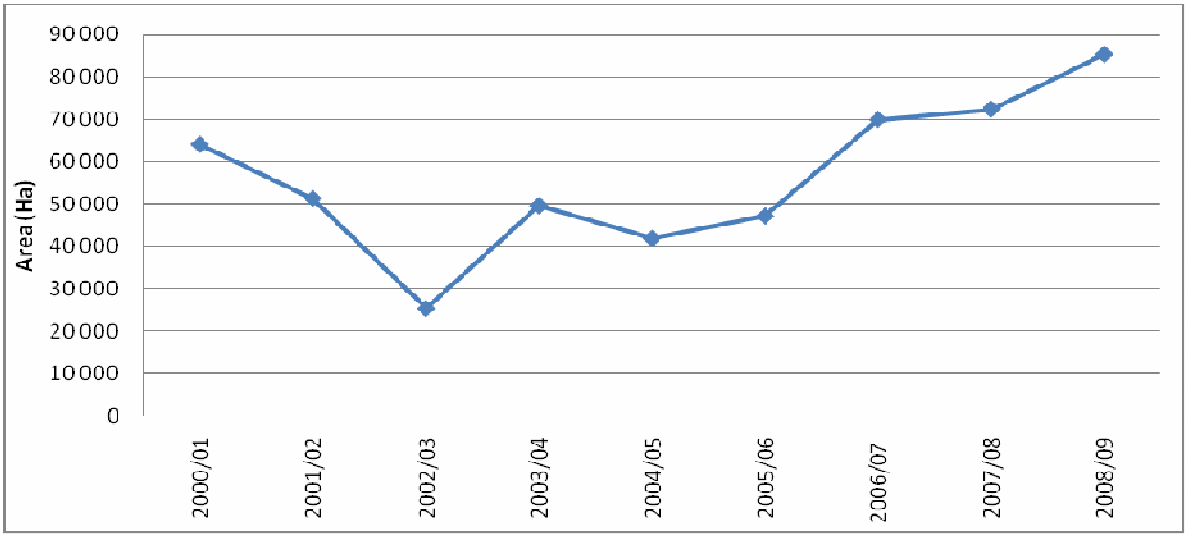
Figure 8: Soybean Cropping Calendar



Statistics from the Ministry of Agriculture, Mechanisation and Irrigation Development (MoAMID) show that area harvested for soybean has been gradually increasing since the 2004/05 season. As shown in Figure 9 below, the steady increase in soybean area harvested came after the three consecutive years of decline from 2000/01 to 2002/03, reaching decade low levels of 34,000Ha that

season. The area harvested has however peaked in 2008/09 to 85,200Ha from 41,800Ha in 2004/05. The trends in area planted are illustrated in Figure 9 below.

Figure 9: Soybean Annual Area Harvested: 2000/01 to 2008/09



Source: MoAMID (2009), AIAS (Various Sources)

A key observation is that the recorded increases in area harvested have however not been met with reciprocal increases in yield. Yield have not reached above 2.3 tonnes/ha since 2000/01, with yields ranging between 0.67 tonnes/ha and 1.4 tonnes/ha between the 2001/02 and 2008/09 seasons. Table 20 below shows the trend in yield and output between 2000/01 and 2008/09 relative to 1990's average yield and output.

Table 20: Soybean Yield and Output Against 1990's Average

	1990's	**00/**	**01/02**	**02/03**	**03/04**	**04/05**	**05/06**	**06/07**	**07/08**	**08/09**
Output ('000 tonnes)[28]	95.51	175	140.8	84.42	41.01	85.82	72.01	70.32	48.3	115.8
	% difference from 1990 Average	*83.2*	*47.4*	*-11.6*	*-57.1*	*-10.1*	*-24.6*	*-26.4*	*-49.4*	*21.2%*
Yields (mt/ha)	1.72	2.3	1.4	1	0.8	1.4	1.3	1.3	0.67	1.36
	% difference from 1990 Average	*33.7*	*-18.6*	*-41.9*	*-53.5*	*-18.6*	*-24.4*	*-24.4*	*-61%*	*-20.9%*

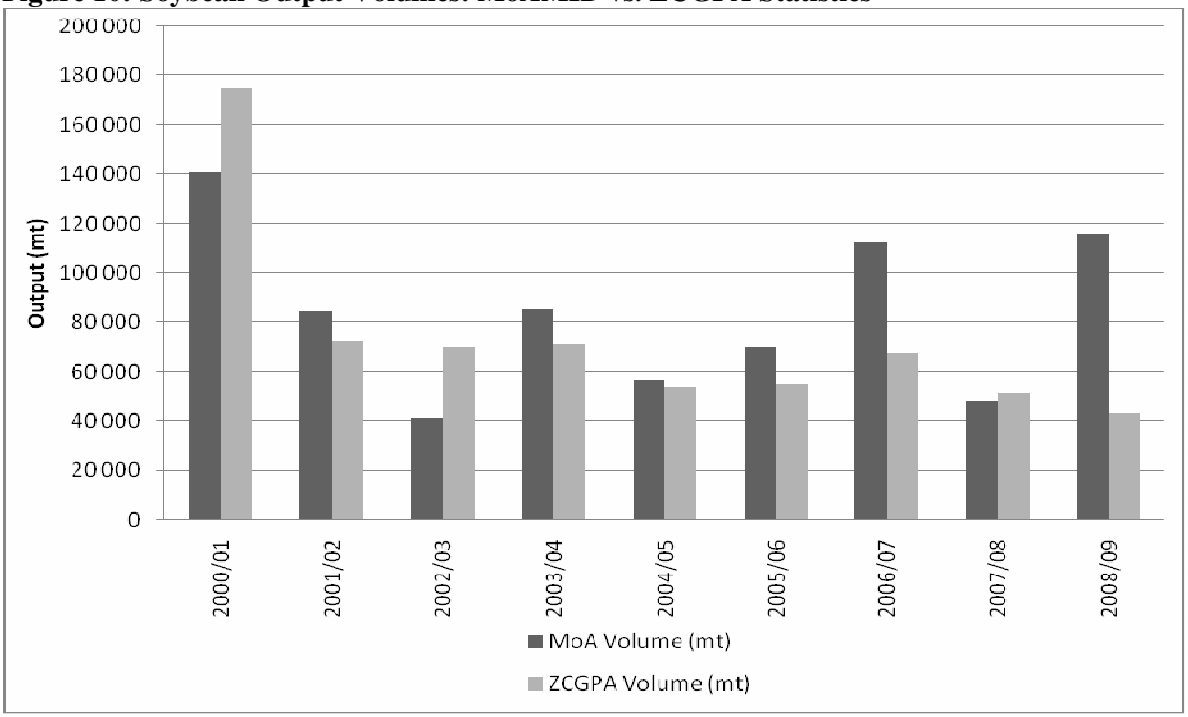
Source: MoAMID (2009), AIAS (Various Sources)

Although statistics from the MoAMID record growth in output in 2008/09, processors argue that they have not been receiving adequate amounts of the soybean raw materials that tally with such increases in output. If such increases are true, then that means soybean is being exported to other countries through informal channels as there is a standing ban on all soybean (and grain) exports. However, it

[28] Output in thousands of metric tonnes

may be that existing data from the MoAMID is inaccurate. Data from the Commercial Grain Producers Association (ZCGPA) shows that output in 2008 is 43,300 tonnes compared to the 115,800 tonnes from the MoAMID data. Figure 10 below shows reported data coming from the MoAMID versus that from ZGPA.

Figure 10: Soybean Output Volumes: MoAMID vs. ZCGPA Statistics



Source: MoAMID (2009), CPGA(2009)

A comparison of the output data shows major disparities in most years. ZCPGA (2009) data reveals that soybean production has not exceeded 72,000 tonnes since 2000. This is contrary to MoAMID (2009) data, which was compiled from farmer surveys. According to the MoAMID, output levels were as high as 140,820 tonnes and 115,800 tonnes. According to the ZCPGA forecasts, soybean output will further decline in 2010 to 30,000 tonnes owing to a number of on-going challenges facing farmers. The farmers' limited capacity to access adequate low-cost inputs and irrigation resources has restricted the areas grown under soybean and compromised efficiency of production. As a result national production over the past two years has declined from 67,600 tonnes in 2007 to 43,300 tonnes in 2008 (ZCPGA, 2009). The decline in output recorded by the ZCPGA is consistent with continued shortages of soybean cited by processors. However, field experts argue that statistics from the MoAMID some of the soybean is being produced for subsistence purposes, with the smallholder sector consuming their own produce as soyflour, soybread and other traditional delicacies.

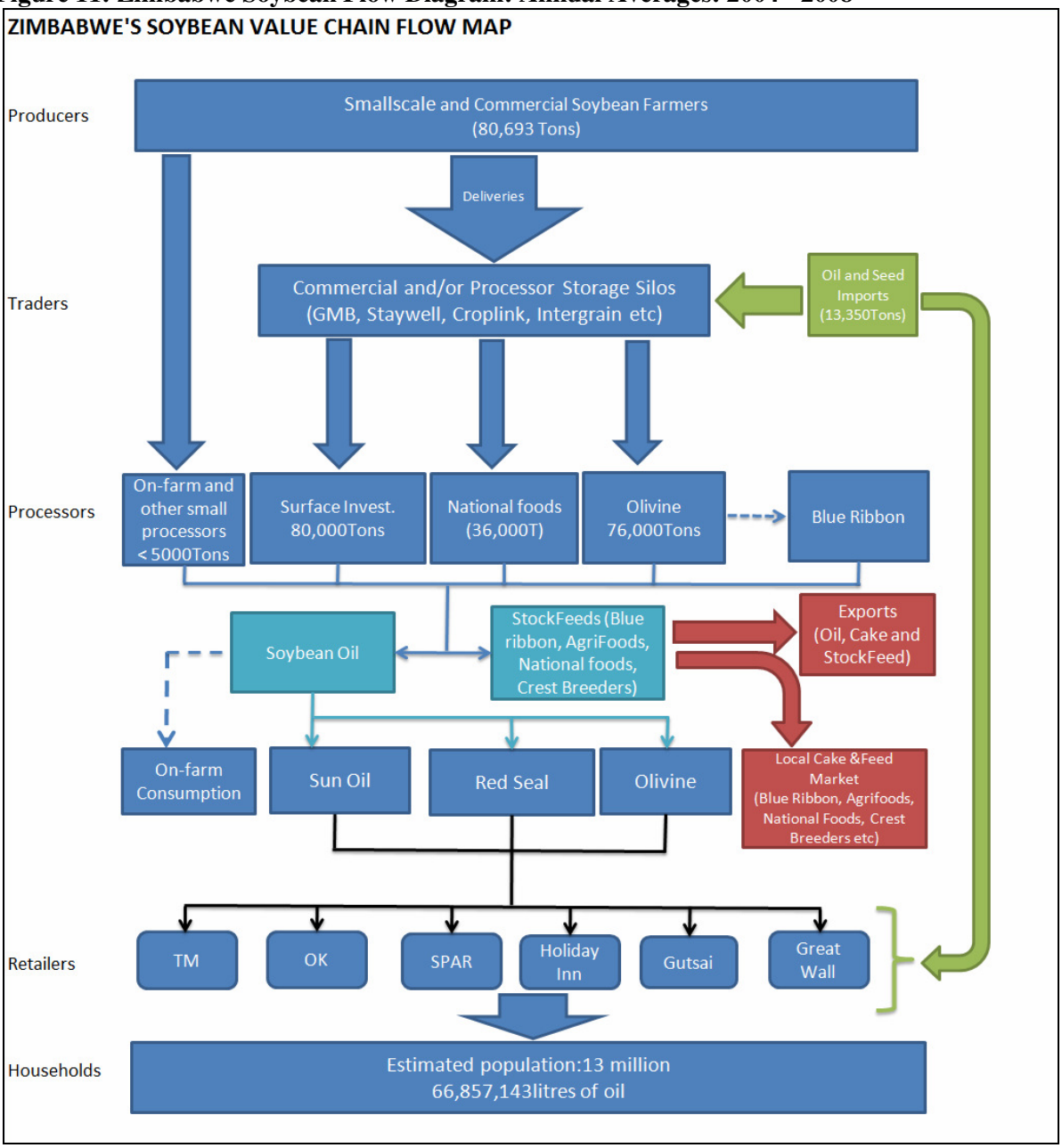
The soybean industry has established that the general drive for increased soybean production, especially under a prevailing economic environment that is typified by high cost of borrowing and costly scarce inputs has so far failed to adequately expand the production base to levels that meet the plus 150 000 tonnes national soybean demand that can sufficiently provide the local oil manufacturing sector and fulfil export demands. Although the Zimbabwe Oil Pressers Association (ZOPA) point out that there is no serious deficit of oil and cake on the domestic market, there however is a great need to expand local soybean production and usable plant capacity in order to meet the total requirement by the large scale industrial oil pressers. This will allow the country to effectively expand their export markets.

Previous and on-going interventions, aimed at increasing domestic soybean production, by Government through the Reserve Bank of Zimbabwe (RBZ), the Soybean Task Force, and the WK Kellogg Foundation funded programmes under the ARC (since 2004) have not brought the desired results. National average yields have been stagnant over the past 8 years, failing to increase beyond the 2.3 tonnes/ha mark recorded in 2000/01. As such, the programs have not had a significant impact on aggregate national output.

5.3 Soybean-to-Soybean Oil Value Chain Analysis

The flow diagram illustrated below summarizes the pathways and industry participants involved at the various levels of the soybean value chain.

Figure 11: Zimbabwe Soybean Flow Diagram: Annual Averages: 2004 - 2008



Source: Zimbabwe Oil Pressers Associations, 2009

5.3.1 Producers

Soybean producers are represented within the two main Farmer Associations which include the ZFU and the CFU. Under the arm of the CFU, soybean growers are represented by the Commercial Oilseed Producers Association; contact details as follows;

- **Commercial Oilseed Producers' Association**
  - Address: P O Box WGT.390, Westgate Harare Zimbabwe
  - Telephone: (263 4) 309800
  - Fax: 309843
  - E-mail : copa@cfu.co.zw

COPA represents the vested interests of commercial oilseed growers in all aspects of production and marketing of oilseed crops, which include soybeans. The Association promotes and supports research, extension and utilisation of technology to ensure the development and expansion of the industry. Soybean producers, through their farmer association have been engaged with the Agricultural Research Council (ARC) and the Soybean Task Force in several research initiatives meant to capacitate farmers and improve production.

5.3.2 Storage

Like the maize and wheat sectors, soybean storage is provided by private and public entities within GMB's storage facilities. With soybean being relatively free from government control, farmers have developed on-farm storage. Nonetheless, processors and traders have the capacity for soybean storage and they have played a key role in terms of off-farm storage options.

5.3.3 Industrial and Research Organisations

The soybean secondary industry consists of a network of research and industrial institutions engaged in soybean production and processing promotion. These are listed below:

Table 21: Zimbabwe's Soybean Industrial and Research Institutes

Organisation	Contact	Phone	Email
Zimbabwe National Soybean Commodity	n/a	n/a	n/a
Agricultural Research Council	Mrs Elizabeth Musimwa	+263 11 413 239	ideaazim@ecoweb.co.zw
Soybean Task Force	Mr. Makonese	+263 11 770 538	fmakonese@agic.uz.ac.zw
Zimbabwe Oil Pressers Association	Mr Maurice Chinyani	+263 11 875 800	mauricechinyani@gmail.com

Source: BFAP/FAO Field Research 2009/2010

Apart from these organisations, there have been traditional key industry players engaged in processing soybean derivatives and/or products. These companies are listed in table 10 and include Premier Milling, Nutresco and Makonde Industries (Pty) Ltd.

In the oil expression subsector, the liberalization of soybean trade as well as the privatization of state interest in domestic soybean processing has influenced the evolution of the industry. The oil pressing sector depends extensively on private capital with virtually no exclusive participation of state or other institutions. In the soybean oil processing sector, there are five major players which include Surface Investments Private Limited, Olivine Industries Private Limited, National foods limited, Blue Ribbon Foods Limited, United Refineries Limited and other small processors (including on-farm and hand

pressers). Olivine Industries Private Limited and National Foods Limited have been in the industry for the past 30 years, while Surface Investments Private limited emerged as a strong new player after being established in July 2006. Below is a list of the players and their description in greater detail.

- **Olivine Industries (Pvt) Ltd**
  - Address: Box 797 Harare
  - Tel: 09263 4 754556/9
  - Fax: 09263 4 754565
  - Contact person: Mr P Chingono, Commercial Director
  - Email: pchingono@olivine.co.zw
  - Managing Director: Mr IM Motsi, Export Director
  - Activity: Manufacturers of cooking oil, vegetable oil, and other products such as margarine and bakers fats, soaps, canned products are well established in Zimbabwe, Zambia and Botswana. Popular brands of oil include Olivine (premium brand), Panol and Soyola.
  - Size: Large company that used to have over 2000 employees. Largest oil seed processor, soap manufacturer and stock feed producer in Zimbabwe.
  - Source: Soybean raw material is in short supply. Foreign Direct Investment (FDI) is also a problem, and Olivine has in the past entered into a contract with a foreign company to purchase crude oil, which Olivine refines and packs for distribution in Zimbabwe (oil and meal). This has helped the company to keep the factory running. Foreign companies purchase soya beans preferably from Argentina as prices are lower (US$550 cnf Durban) or South Africa (deal with South African trading houses such as FR Waring, Gardiner Smith, Southcomm, etc as the company is not big enough to charter full vessel)
  - Fortification: Not for edible oil. Margarine is fortified with vitamins sourced from Switzerland. Supply meal to Makonde and Nutresco for fortification.
  - Exports: Export products to Zambia, Malawi, Mozambique and Botswana
  - Ownership: Used to have 51% owned by HJ Heinz, USA Corporation and 49% government owned. Olivine is now owned by Cottco (who are the parent company) and IDC, hence they have better credit and access to cotton seed from Cottco. Their plant is more suited to run on soybeans and delinted cotton. However, the plant is over three decades old and needs refurbishment.

- **United Refineries Limited**
  - Address: P O Box 873, Bulawayo
  - Tel: +263 4 410561/5
  - Fax:+263 4 416514
  - E-mail: chikwandae@url.co.zw
  - Contact: Elizabeth Chikwanda, Sales and Marketing Director
  - Description: The company is a primary producer of cooking oils and soap. The oils are cotton seed and soya based. Their makeup is determined by the availability of oil seed. Raw materials are sourced locally when available and from South Africa. The company can employ about 400 people

- **National Foods Ltd.**
  - Address: Box 269 Harare, Zimbabwe.
  - Tel: 09263 4 781182-91, 753 751-2, 753760, 753753, 753741, 753756
  - Fax: 09263 4 753 764
  - Contact person: Jonathan Baker, Director Consumer Products
  - Cell: +263 91 231 069 or + 263 11 209 190
  - Email: jonathanba@natfood.co.zw
  - Sales and Marketing Director, Mike Yeatma,
  - Cell 011 205 944

- Email: mikeye@natfood.co.zw
- Description: National Foods mills also produce cooking oil and fats in addition to maize and wheat milling. Its product range, which comes in a variety of pack sizes and brands, includes oil products such as household cooking oil, industrial cooking oil and baker's fats.
- Size: The monthly oil expression capacity of the plants is 1700 MT
- Fortification: Cooking oil – none is fortified
- Exports: Exports are normally done but the economic situation prohibits this at present.
- Ownership: Private. Part is Tiger SA, part is Anglo, and the rest is local.
- Note: National Foods on the other hand has two oil plants in Harare and Bulawayo that are also over thirty years old, and these have not been running consistently over the past three to five years. National Foods has strong distribution capacity with oil, wheat and maize products into sister retail chain giant SPAR.

- **Blue Ribbon Foods**
  - Address: PO Box: 4350, Harare
  - Telephone: 486910/7; 486590/3
  - Fax: 486899; 486710
  - E-mail: brfoods@samara.co.zw
  - Contact Person: F D Njenje/ M Pfende
  - Blue Ribbon engages its oil expressing activities through Olivine Industries. The company changed hands in 2003 with TA Holdings selling their 49% share. Blue Ribbon South Africa holds the other 51% share.

- **Surface Investments Limited**
  - Address: 20647 Masanga Road, Chitungwiza Industrial Area Chitungwiza
  - Telephone: +263 4 2905178/466
  - Contact Person: Maurice Chinyani
  - Email: mauricechinyani@gmail.com
  - Contact person: Maurice Chinyani, CEO
  - Cell: +263 11 875 800
  - Ownership Structure: Surface Investments is jointly owned by Midex Overseas Limited (who have a 74% stake) and the Industrial Development Corporation of Zimbabwe (IDCZ) who own a 26% stake. The IDCZ is wholly owned by the GoZ. Surface was established in July 2006 and has been specialising in manufacturing cooking oil and stock feeds. Currently, Surface holds the largest market share, estimated at 31% in 2007.

The market shares for the industry players in the oil pressing sector are displayed in Table 22 below

Table 22: Market Shares in the Soybean Oil Processing Sector

Company Name	Market Share (%)	Location
Surface Investments Private Limited	31	20647 Masanga Road, Chitungwiza Industrial Area
Olivine Industries Private Limited	27	Birmingham, PO Box 797, Harare.
National Foods Limited	24	13 Foundry Road, Aspindale
Blue Ribbon Foods Limited	9	4 George Drive, Masasa, Harare
United Refineries Limited	3	Kelvin North Industrial Area, P O Box 873,
Other small processors	6	-

Source: ZNSCA Report (2007)

A study by the Zimbabwe National Soybean Commodity Association (ZNSCA) in 2007 revealed that the top three oil pressers in Zimbabwe accounted for 82% market share. Small oil pressers comprising of on-farm and hand pressers are believed to be providing about 6% of the nation's soybean oil. The fact that large quantities of seed are required for oil extraction and refinery make it very difficult for small to medium processors to survive. Important vertical linkages exist in the oil expression subsector. For instance, Surface Investments has provided toll for onward packing for Produtrade, The GoZ's Bio-diesel project, Olivine and National Foods. Apart from that, Blue Ribbon has been doing oil expression through Olivine.

Overall, Zimbabwe has an installed capacity of processing 530,000 tonnes of seed. However, only 63% of this capacity is utilized due to raw material input constraints and obsolete technology. The table below displays the estimates of the installed and usable capacity in the processing sector.

Table 23: Zimbabwe's Soybean Oil Pressing Industry Capacity (2009 Estimates)

Name	Installed Capacity		Usable Capacity		Soybean Used (mt)
Surface Investments	200,000	38%	180,000	53%	80,000
Olivine	120,000	23%	80,000	24%	18,000
National Foods	90,000	17%	40,000	12%	36,000
United Refineries	80,000	15%	10,000	3%	-
Grafarx Consortium	25,000	5%	12,000	4%	-
Others	15,000	3%	15,000	4%	75,000
Total requirement @ 100% Capacity	**530,000**	**100%**	**337,000**	**100%**	**141,500**
Deficit Met By Imports			45		13,335

Source: Zimbabwe Oil Pressers Association (2009)

Of the 337, 000 tonnes of oil seeds currently used in oil expression, soybean accounts for 141,500 tonnes (or 42 percent), while the rest is apportioned to sunflower and cotton seed. Grafarx Consortium especially uses cotton seed from their ginneries as a source of raw material and United Refinery use mostly sunflower seed. ZOPA points out that even though soybean production is low; there is no serious deficit for soybean seed.

In the next section, the state of oil processors is explored by reference of a previous study done by the ZNCSA in 2007. Findings suggested that the state of the oil processing sector require the need for upgrading of technology for the processing plants, except for Surface Investments Private limited which has recently installed state of the art technology. A profile of the oil expression industry based on the ZNCSA (2007) is displayed in Table 24 on the next page.

Table 24: Zimbabwe Oil Processors

	Olivine industries	National Foods	Surface investments	Blue Ribbon	United Refineries Limited	Other small technologies
Processing capacity (tonnes/ year)	90 000	30 000	+100 000	30 000	80 000	20 000
Capacity (tonnes / day)	400	150	400 (soy) 400 (cotton)	Through Olivine	200 (soya) 300(cotton)	1- 15 (Soy) 1-15 (cotton)
Processing method	Solvent extraction	Solvent extraction	Solvent extraction	Solvent extraction	Solvent extraction	Screw press
State of Processing plant	Plant is over 30 years and needs major refurbishment	Two major plants that are over 30 years in Harare and Bulawayo	One major plant in Chitungwiza which is 3 years old and still new		Based in Bulawayo and plant and machinery are old.	
Stock at hand	Nil	1500T	4000T	Nil	Nil	>1000T
Source of raw material	Contracts, Open market, imports	Contracts and open market	Open market, contracts	Open market	Open market	Own farms, open market
Toll crushing services	Yes. Retains most oil and Guards brand . Releases all cake.	Yes. Retains most oil and Guards brand . Releases all cake.	Yes. Retains most oil and Guards brand . Releases all cake.	No processes own produce through Olivine.	Little activity on seed buying, crushing and Oil expression.	Yes. Releases both oil and cake.
Raw material crushed	Soya and Cotton	Soya and Cotton	Soya and Cotton	Soya and Cotton	Soya and Cotton	Soya and Cotton
Previous experience with contracts	Works with LSCF. Successful with some ARDA estates poor on others. Nil SSC	Successful with LSCF. Nil SSC	Failed dismally with ARDA. Nil SSC	No contracts	Nil to date. New projects under planning.	Nil. Most of them are pig growers, soya farmers or displaced growers getting into value addition.
Vision on grower contracts scheme	To continue with LSCF & minimise risk on shareholders' investment	To continue with LSCF & minimise risk on shareholders' investment	Planning on way forward. Rather low optimism	To continue with LSCF & minimise risk on shareholders' investment	To introduce contract farming.	To expand own processing capacities for value addition

Source: ZNCSA Report (2007)

Technology as a pertinent aspect

Oilseed processing is capital-intensive, requiring specialised knowledge and state-of-the-art technology. There are 3 main methods for extracting oil from soybeans. These include:

- Solvent extraction
- Mechanical Expeller. (Continuous pressing or screw pressing)
- Hydraulic pressing. (Not common in soybean replaced by expeller pressing).

Solvent extraction is mainly used by the large scale operations which process at least 100 tonnes per day. The estimated plant costs are in the region of US$ 20 Million, plus additional costs for chemicals that are utilised in the extraction and separation of oil from the soybean material. Mechanical Expellers (continuous pressing or screw pressing) is a widely applied method of mechanical oil extraction popular among medium to small scale processors who process at least 15 tonnes per day. The plant costs can fall between US$5000 to US$50000.

At farm level, multipurpose screw press/expellers are used to process almost any kind of grain. The disadvantages are the lower yield of oil, with residual oil in the cake not going beneath 3 to 5%. The throughput of these mechanical screw pressers is reportedly between 5 to 10 litres a day. Other smaller appropriate technologies convert soybean into useful household products e. g flour, milk and oil. Such technology is manufactures by Precision Grinders (Hino) and Tanroy engineering (Lister Petter TS2 driven grinders).

One of the main concerns for established players, as cited, has been the issue of aged plants, which hinders domestic ability to effectively compete with regional processors since they are unable to realize economies-of-scale. Most of the local crushing plants, particularly those for United Refineries, Olivine and National Foods, were erected in the mid-eighties and have not been updated since then.

5.3.4 Retailing and Consumption

Domestic markets for soybean oil have been dominated by wholesalers such as Mahommad Mussa, Bhadhella, RedStar and Jaggers. Retail supermarket chains such as TM, OK, Spar, Gutsai and other smaller retailers, including restaurants and hotels (e.g. Great Wall and the Holiday Inn) in the hospitality industry are also important markets for processors. Large corporates involved in the manufacture of snacks such as Cairns Foods, Victoria and Lyons have also made use of soybean oil as a raw material inputs. Regional export markets form an important part of the chain and these have been mainly destined for the South African animal feed industry.

Assuming that each household can afford cooking oil, it is estimated that an average of 3 litres per month[29] will be consumed. With Zimbabwe's population estimated at 12,3 million these assumptions result in an estimated national consumption level of approximately 6,857,143 litres of cooking oil (this total oil output requires a soybean seed equivalent of 334,319 tonnes). The usable capacity of the industry however approximately produces 6,393,260 litres, leaving the country with a 463,883 litres deficit of cooking oil.

[29] This is a rough estimate given the inter- and intra-income distribution of the urban and rural populations. While families in high income (low density) areas use more cooking oil than those in middle to low income (medium and high density) areas, the rural areas however are where most of the families are and use much less cooking oil.

Findings from the survey undertaken across the country reveal that imports were significantly cheaper than the locally made oil. Table 25 summarizes the average prices of the cooking oil products from across the country. The most popular cooking oil brands were Olivine, Surflow, Gold Seal and Cater Master. The volume of imports on supermarket shelves has visibly declined despite prices being cheaper. From informal interviews with customers, it was noted that customers prefer locally made cooking oil brands than the imported brands. Imports tended to increase as one moves away from Harare towards the Southern parts of Zimbabwe. This might be emanating from the fact that the southern region is much nearer to South Africa were most of the products were being procured by customers during food shortages. To some extent, the distribution channel of the major local oil pressers, most of which are located in Harare, is not efficient enough to ensure a consistent supply of cooking oil in the southern region at cheaper prices.

Table 25. Comparative Analysis of Retail Cooking Oil Prices

Average Cooking Oil Price/Litre	Jan -2010
Price in Matabeleland, Masvingo and Midlands	$1.53
Price in Mashonaland, Manicaland and Harare	$1.54
Imported Oil Retail Price (from RSA)	$1.40
Gap between Local and Import prices (Absolute)	$0.14
Gap between Local and Import prices (%)	9.09

Source: BFAP/FAO Retail Survey, 2009

As shown in Table 25, the retail survey revealed that imported cooking oil, on average, is approximately 9% cheaper than domestically produced oil on the supermarket shelf across all provinces of Zimbabwe.

In the soya chunks market, the market is filled with local chunks which are said to be of low nutrient content as compared to the imports. There was no dominant brand in the soya chunk market as they are numerous soya chunk packaging companies. Most products were unbranded and unlabelled. The average soya chunks price in Zimbabwe in January 2010 was averaging $1.88 per kg but has since declined to between $1.00 and $1.28 per kg.

5.4 Price Formation

The soybean market, as with all other oilseed crops in Zimbabwe, has been operating in an open-market system characterised by inter- and intra-seasonal oilseed prices that vary substantially. Although soybean seed is also traded through GMB like all other grain crops, the local price of soybean seed has generally been free from regulation with limited government intervention to date.

Soybean prices have not only been influenced by the supply and demand factors of soybean seed, but also the supply and demand factors of the local and international soybean seed market. The international soybean seed prices implicitly act as a benchmark for domestic seed and oil prices. Of particular importance now is the situation of the South African and Argentinean soya bean markets that have a significant impact on the local market prices. Domestic soybean producers trade their soybean produce with local processors at import parity prices. This is because Zimbabwe is a deficit producer of soybeans and therefore import tariffs may have an impact on domestic soybean prices. Table 4 in Section 2 shows the duty regime imposed on soybean and soybean products.

While the raw seed tariff is fixed at 2% of the free on board price (fob) price for COMESA countries, expo-oxidised oil and oilcake are duty free. This zero-duty regime has been extended beyond December 2009. Industry experts point out that landed cooking oil (which is in fact palm oil disguised as soybean and sunflower oil) is fetching a price of US$600/tonne against a domestic retail oilseed

price of US$660/tonne. Thus the domestic industry is facing competition from cheaper imports of palm oil that has been triggered by oil shortages in the previous years.

5.5 Unpacking the Soybean-to-Soybean oil/cake Value Chain

Similar to the maize-to-maize meal and the wheat-to-flour value chain analyses, various assumptions had to be made to construct the framework for the unpacking of the soybean seed – to – soybean oil supply chain as presented in Table 26 below. The basic assumptions used in the calculation of this value chain are based on the same principles as the assumptions used in the calculation of the maize-to-maize meal value chain. For this value chain, the following four main nodes or levels were identified. These include; soybean producers, crushers/refiners of crude oil, wholesale/retailers, and consumers.

Table 26 represent the supply chain from soybean seed to soybean oil for the month of January 2010. It should be noted that the breakdown reflects an average cost structure for the industry that is based on information provided by the survey of oil pressers[30] in Zimbabwe. The individual cost structures vary according to companies and the technology that they are using. As such, this merely reflects a representative average breakdown of costs in the value chain.

Important to note is that the assumed source of soybean seed and oil supply are the domestic farmers and local crushers respectively. This is because Zimbabwe imports less amounts of soybeans and imports a small though unconfirmed amount of crude oil due to strict SPS policy measures that render importation of such products unviable. Estimates for domestic crushing costs, the likely crushing margin, and the crushers' realisation are presented in Table 26.

Industry experts point out that soybean's oil extraction rate ranges between 16% and 18% for most extraction plants. For newer technologies, this average may be slightly or marginally higher. However, for the purpose of the study, calculations are pegged at an industry average extraction rate of 20% for oil and 80% for cake. This means that a tonne of soybean produces 180 litres of oil.

Total crushing costs are estimated at US$525.00/tonne. Total income of oil refinement is estimated at US$200.00/tonne of oil while total income from cake is estimated at US$400.00 per tonne. Packaging costs (including distribution costs) are estimated at US$0.42/tonne oil. The total costs of refined soybean oil (including packaging and losses during oil refinement) are endogenised and the manufacture's margin of US$75.00/tonne is given as an industry average calculated figure given by the Zimbabwe Oil Pressers Association. The total cost of soybean oil (after including packaging costs and distribution costs) before it goes into the wholesale and retail sector, is US$600/tonne of oil.

[30] See Appendix C for survey sampling methodology

Table 26: The Soybean seed –to- soybean oil supply chain[31]

		Unit	Jan 2010
A) FARMERS			
FARMGATE PRICE		US$/tonne seed	
Transport cost: Farm gate to silo	a	US$/ tonne seed	261.27
Handling & Storage cost: Costs of farmer	b	US$/ tonne seed	14.08
Soybean Producer Price	**c=Sum(a:b)**	**US$/ tonne seed**	**380.00**
B) LOCAL SUPPLY OF SOYBEAN: CRUSHING ACTIVITY			
Transport costs	d	US$/ tonne seed	20
Price Crushers Pay For Seed	e	US$/ tonne seed	400
Crushing costs	f	US$/ tonne seed	125
Total Crushing costs	**g=Sum(c:f)**	**US$/ tonne seed**	**525**
C) OIL REFINEMENT ACTIVITY			
Oil refinement (20% extraction from 1ton of seed*Oil price)	h	180 litres @ US$1.10	200
Cake contribution (80% cake from 1ton of seed*cake price)	i	80% @ US$500	400
Total Sales	**j=Sum(g:i)**	**US$/tonne oil**	**600.00**
MANUFACTURER's MARGIN (incl. packaging)	k=(j-g)	US$/tonne oil	75.00
SOYABEAN OIL RETAIL PRICE (@10 mark up)	l	US$/tonne oil	660.00

Source: Calculations Adapted from the Zimbabwe Oil Pressers Association

The soybean oil retail price of US$660.00/tonne is derived from the average price of a 750ml bottle of soybean cooking oil. After taking into account factors like oil density, it was estimated that 1,453 750ml bottles of cooking oil are equivalent to one tonne of oil.

Table 27: Summary statistics of value chain calculations

		Units	Jan 2010
Manufacturer-to-Retail margin	*k*	US$/ton	75.00
Raw material as percentage of retail price	*c/l*	%	57.60%
Manufacturer's margin as percentage of retail price	*k/l*	%	11.36%

Source: Own calculations

[31] The assistance of the Zimbabwe Oil Pressers Association, in particular its chairman Mr Maurice Chinyani, in the compilation of the value chain breakdown is acknowledged

The manufacturer-to-retail margin of US$75.00/tonne estimated in Table 27 is calculated by subtracting the total costs of soybean oil from the retail price of soybean oil. This margin captures the administration and marketing costs of both the retailers and wholesalers.

5.5 Constraints in the Soybean Value Chain

5.5.1 Producers

Productivity in the soybean sector has been poor and uncompetitive. Soybean producers suggest several factors that could improve the situation including:

- The establishment of a Futures Exchange that will provide farmers with a ready market for their soybean seed
- On-going land invasions that have brought uncertainties in whether farmers should to produce
- Increase Irrigation capacity and refurbish available irrigation facilities
- Improve farm level financing
- Reliable supply of low-cost inputs (e.g. Seed, fertiliser and electricity)

5.5.2 Processors

At the processing level, the following problems are inherent:

- Stringent importation requirements, such as SPS, Health and Clearing Agent fees, result in a substantial portion of total importation costs
- Prevailing shortage of raw material inputs. Some manufacturers fear they will have no stocks in their warehouses by April 2010 yet MoAMID estimated that growers had produced 115,800T in 2009, the highest output in 6 years.
- Dilapidated infrastructure in the main processing firms notably national foods and olivine
- Lack of foreign direct investment
- Currently agricultural export volumes are low.

5.6 Conclusion and Recommendations

Generally processing of soybeans into oils, cake, flour, and other products is a way of adding value. Currently, soybean oil processors cannot source sufficient raw material to operate at more than 40 % of their full capacity. In fact soybean supplies are likely to continue to decline throughout the year, even as forecasts of a further decline of soybean output are projected in the following season. Given these projections, it is therefore necessary to develop a sustainable strategy involving both the processor and producer in order to increase the production base. Contracting or toll manufacturing is an alternative that may be considered. Toll manufacturing (or tolling) is an arrangement through which one company (the toll manufacturer or toller) uses its own specialized processing equipment to make oil for a producer; this is also referred to as contract manufacturing.

Overall, a critical issue within the soybean sector is the consistent supply of cheaper locally produced inputs. Zimbabwe's Soybean market has become heavily reliant on the importation of key production

inputs such as seed and fertilizer. Imported inputs have meant that domestic farmer's input costs[32] have risen and remain high, relative to other soybean producers within the region. On the open market, domestic seeds cost an average of US$10.00 per 10kg pack (Esterhuizen, 2010) compared to seed costs of around US$3.00/kg within the region (Chikwati, 2009). If current conditions prevail, it is expected that output will continue to decline. Therefore the following recommendations have been identified as being necessary and sufficient in promoting growth within the sector. These include:

- The creation of a comprehensive database of daily, weekly and monthly price, output, imports and exports. This database can be used for planning purposes and can be maintained through the Ministry of Agriculture and other relevant stakeholders.
- Adequate financing of farm and Processing Operations. Farmers require a special bank in the mould of the former Agricultural Finance Corporation (AFC), now Agribank, to address the particular needs of farmers through special concessionary interest rates to promote the expansion of production.
- Technology upgrading in processing plants by large established processors whose technology has now become obsolete.
- Irrigation upgrading and consistent input supply to improve soybean yields.

[32] While Esterhuizen (2010) points out that a 50kg bag of fertiliser is costing an average of US$27.50 in Zimbabwe, market prices however reflect that fertilizer is selling at Windmill and ZFC between US$29.00 at US$33.00 respectively (Chikwati, 2009). Prices can go up to as high as US$42.00 per 50kg bag at most retail outlets depending on location. However, regional countries like Malawi and Zambia are selling fertilizer at US$5.70 per 50 kg bag (ibid).

6. RICE SUBSECTOR VALUE CHAIN ANALYSIS

6.1 Introduction

Rice is an important substitute grain crop for maize and wheat. There are a only few specific varieties of paddy and dryland rice that can be grown in Zimbabwe and little has been documented concerning the local agronomic and value chain structure of the crop. Generally, most Zimbabwean rice is not of good quality and its production is mainly for subsistence purposes. It has been established that the domestic rice production in Zimbabwe is marginal, ranging from anything between 600 tonnes and 700 tonnes (FAO, 2009). However, MoAMID (2010) records that rice production in the 2009/2010 season is estimated at 778 tonnes, down from a 2008/2009 estimate of 3,046 tonnes. While FAO data shows that Zimbabwe has been planting between 250Ha and 290Ha between 2001 and 2007, MoAMID (2010) estimates that area planted at 2,334 Ha and 3,189 Ha in the 2008/09 and 2009/10 seasons, respectively. However, MoAMID data does not classify the types of rice produced/planted. Recorded estimates from FAO reveal that paddy rice imports have averaged 100 tonnes between 2000 and 2007. This is because Zimbabwe does not have conducive agronomic conditions and therefore lacks a comparative advantage in the production of rice. This is why Zimbabwe has been importing a substantial amount of rice types, including milled and broken rice from traditional large scale producers such as Malawi, India, Thailand and Vietnam. Table 28 below shows the amount of rice imports that come into Zimbabwe from September 2008 to September 2009.

Table 28: Rice Imports (September 2008-September 2009)

Month	Company	Individual	NGO	Totals
September-08	0	0	0	**0**
October-08	60166.17	18915.05	41.74	**79122.96**
November-08	0	0	0	**0**
December-08	0	0	0	**0**
January-09	184	0	0	**184**
February-09	14507	60	30.3	**14597.3**
March-09	11646.04		0	**11646.04**
April-09	12975.85	480	4	**12459.85**
May-09	0	120	162	**282**
June-09	0	0	0	**0**
July-09	0	0	0	**0**
August-09	0	0	0	**0**
Septmber-09	6245	630.4	10	**6885.4**
Total	**121231.9**	**26066.43**	**440.518**	**146738.8**

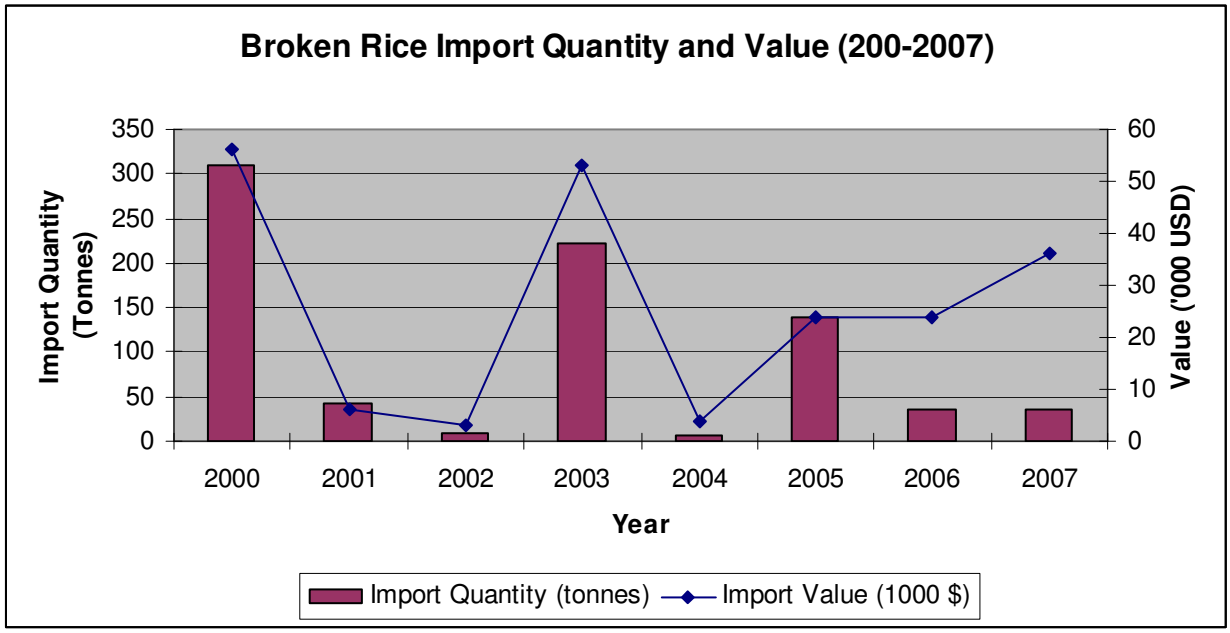
Source: MoAMID (2009)

From September 2008 to September 2009, the MoAMID issued import permits that amounted to a total of 146,738 tonnes of rice. Assuming that importers fully utilised the quantity specified in these permits, it would imply that domestic rice grain supply only accounts for 0.4% of total rice consumed within Zimbabwe. Table 28 above indicates that private companies were the largest importers in the year, importing over 121,000 tonnes. From November to December 2008, and from June to August 2009 there were no rice imports that were observed, while a sudden surge in imports occurred from February to March 2009. Anecdotal evidence suggests that the increase in import quantities during this period was due to the Reserve Bank of Zimbabwe's (RBZ's) Foreign Exchange Licensed

Warehouses and Retail Shops (FOLIWARS) programme introduced in September 2008 to stabilise food supplies through imports. Delays and time lags involved in the importation of rice vis-à-vis the processing of import permits coincide with the peaked increase in rice imports, particularly frpm January to May 2009.

The value of rice imports has been high particularly in the mid decade, increasing sharply between the period 2004 and 2006. As shown in figure 12, Zimbabwe's value of broken rice imports in 2006, rose to above US$35.5million before abruptly falling to US$ 274,000 in 2007. The underlying reason for the observed increase in volume (and therefore value) of rice grain imported was the fall in domestic maize production to below half of the country's consumption requirements in 2005 and 2006. Zimbabwe is generally a net importer of broken rice and all other rice products, and the figures here reflect that broken rice imports in the past generally fluctuated below US$3.088million.

Figure 12: Import Value of Broken Rice: 2000 to 2007



Source: FAO (2009)

Milled rice is also popular in Zimbabwe and imports have been relatively higher in most years when compared to broken rice in value terms. The value of imports and exports of milled rice are displayed in Appendix E. Imports of milled rice have been worth at least US$2.9million in 5 of the past 8 years. The FAOStat data is however in contrast with the FAO/GIEWS[33] (2000;2001) balance sheets which reveal that no recorded exports of milled rice occurred. The data anomaly needs to be probed further in future research to establish volume data for milled rice exports.

6.2 Rice Value Chain Map

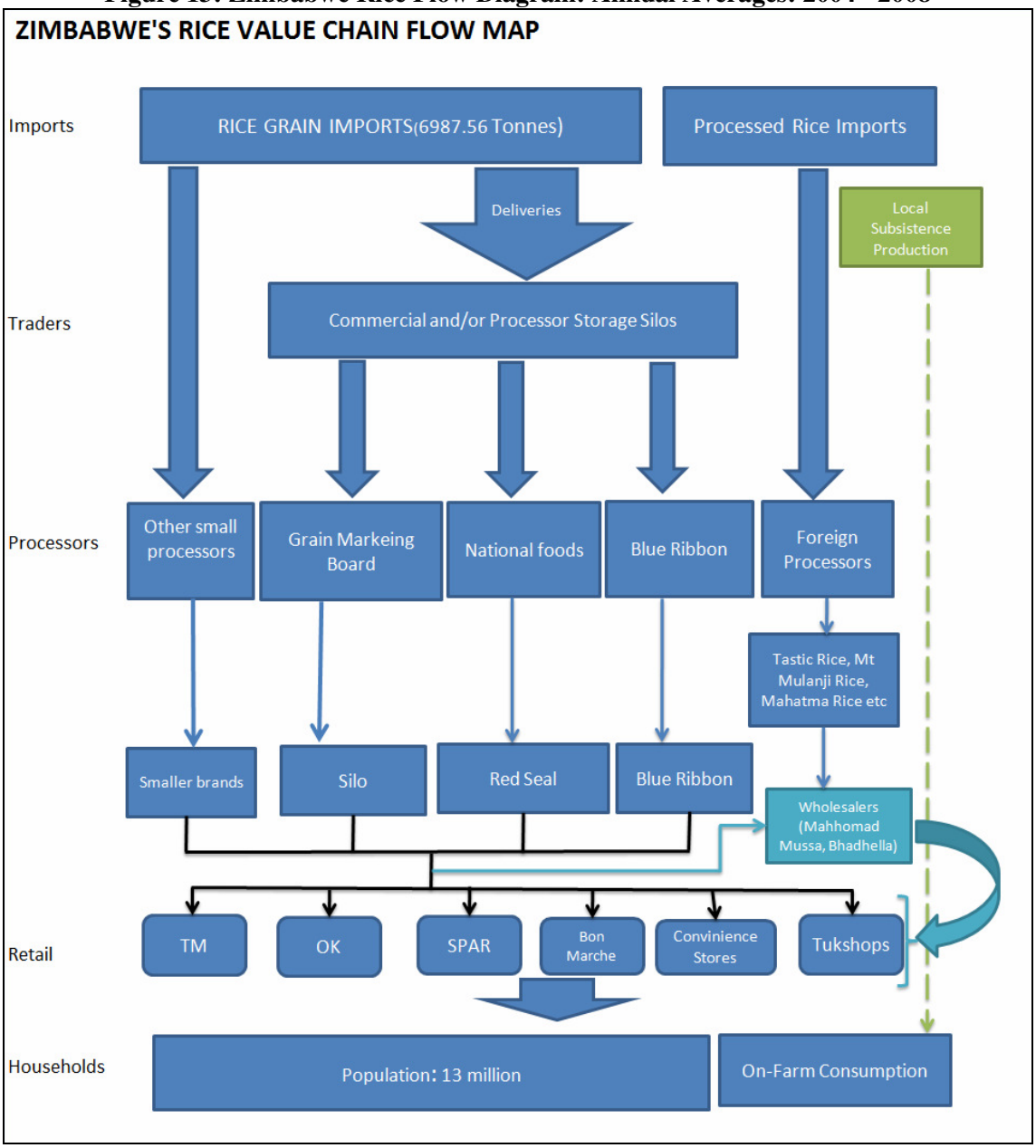
This section presents an outline of the value chain of rice and rice products in Zimbabwe. From the map presented, it is important to note that the domestic production base is small and therefore only feeds a small part of the population, which is mostly on-farm subsistence.

[33] Check FAO/GIEWS(2000; 2001) balance sheets in FAO/GIEWS Part III, No2 August 2001 Zimbabwe 48 available at http://www.fao.org.docrep/004/Y1417E/ctry/AF010847

Primary and secondary rice processing activities primarily involve the packaging, distribution, consumption and regulation of imported rice. Within this marketing system the value chain consists of key agents; these include traders and intermediaries, rice processors and consumers. The marketing activities along the supply chain involve importation, storage, and processing, done by private grain importers, market intelligence, standardisation of measures and weights, financing and risk bearing functions, which are performed by the Department of Trade and Industry.

A conceptual framework is displayed below to present a flow diagram of the channels through which rice is marketed.

Figure 13: Zimbabwe Rice Flow Diagram: Annual Averages: 2004 - 2008



The potential domestic rice market size is estimated at approximately 150,000 tonnes and this is because rice in Zimbabwe is a less prominent grain commodity when compared to maize and wheat. Its consumption is usually associated with the middle class to elite households.

6.2.1 Producers, Importers and Storage

The primary industry within the Rice subsector consists of the storage industry. Imported rice finds its way into the silos of large private corporations who are mostly also engaged in grain and wheat milling. Therefore, most of the main companies that are established in the maize and wheat milling industries are also found in the storage industry, and are vertically integrated into the processing of rice as part of their diversification strategy. These players include traditionally established industry players such as National Foods Ltd with it popular brand of Red Seal rice; Blue Ribbons Foods, and the Grain Marketing Board, which produces the SILO rice brand.

Rice importers are subject to Sanitary and Phyto-sanitary (SPS) measures and costs associated with such measures. These costs are listed in Table 29.

Table 29: Fumigation and Handling Charges

	Unit	**Cost-Jan 2010**
FUMIGATION CHARGES		
• Bulk	US$/Tonne	1.00
• Bagged	US$/Tonne	1.10
HANDLING CHARGES		
• Bulk in bulk out	US$/Tonne	2.00
• Bulk in and bag out	US$/Tonne	2.50
• Bag in bag out	US$/Tonne	3.00
• Bag in bulk out	US$/Tonne	3.50

Source: GMB (2009)

The main player in the storage of rice is the GMB, offering own storage and storage for other private players in the rice sector. The storage services offered by the GMB to the private sector range from ordinary storage and pool storage to storage of bagged grain. Charges for such services are displayed below:

Table 30: Storage Costs

STORAGE FEES (SILO)	**Unit/ Period**	**Cost-Jan 2010**
Ordinary Storage (All Depots)	US$/ Tonne/day	0.10
Pool Storage (All Storage)	US$/ Tonne/day	0.10
STORAGE BAGGED		
Shed	US$/ m^2	2.00
Open	US$/Tonne/day	0.15

Source: GMB (2009)

Rice coming through the GMB is charged US$0.10/tonne/day for bulk storage while bagged storage is charged US$0.15/tonne/day or US$ 2.00/m^2 for open and shed storage respectively.

6.2.2 Processing

While the only processing that takes place in the rice sector is branding and packaging imported rice, other numerous functions are performed by processors involved in the Zimbabwean rice value chain. Re-bagging, weighing, stacking, moisture tests are some of the standard functions that processors have to perform. Larger rice processors like the GMB have provided most of the infrastructure and

equipment to other rice processors for hire. Below are some of the costs involved in the processing of rice.

Table 31: Additional Costs in Rice Processing

	Unit	Cost-Jan 2010
REBAGGING	**US$/**Tonne	2.00
WEIGHMENT (Weighbridge charges in out)	US$/Tonne (In/Out)	15.00
STACKER MACHINE HIRE		
• 30 Ft	US$/Week	40.00
• 15 Ft	US$/Week	20.00
• 1t Scale	US$/Week	10.00
TARPAULIN HIRE	Per day	15.00
OTHERS		
• Moisture Test	Per sample	0.50
• Rental	Per square metre	1.00

Source: Various Sources (2009)

6.3 Price Formation

The Zimbabwean rice value chain is generally unregulated with limited government policy interventions. Unlike other grain commodities, rice has only been affected by price controls, trade licensing requirements or direct government-sponsored procurement measures to a fair extent. The limited government involvement in the rice value chain has been a factor for its growth and local competitiveness. The free market environment and the vibrant marketing channels have allowed rice and rice products to be imported. Zimbabwe is a net importer of rice and rice products and, therefore, import tariffs have a direct effect on the level of domestic prices. The prevailing tariff duties as of December 2009 are shown in Table 4. Rice and other rice products are imported at a fix import duty of 10% of the free on board (fob) price.

From the survey undertaken across the country, it was shown that imports were more expensive than the locally produced brands (see Table 32). The prices tended to increase from the capital city radiating outwards towards the borders. Below is table showing the average prices of the rice products from across the country. The most popular rice brands were Mahatma, Pro-brands, Victoria and Tastic Brands.

Table 32: Comparative Analysis of Retail Rice Prices

Average Rice price (US$/Kg)	Average Price/ Kg
Domestically Packaged Brands	$1.16
Imported Packaged Brands	$1.70
Overall Mean Price	$1.30

Source: BFAP/FAO Retail Survey, 2009

6.4 Unpacking the Rice Value Chain

A summary of the key functions and costs is outlined in the value chain cost structure presented in table 33. The dynamic functioning of the rice value chain requires the unpacking of the supply chain into three main nodes or levels, which can be identified in this food chain. This part of the report is organised into two sections, beginning with the presentation of the methodology, unpacked supply chain and general discussions of the results; and the second section provides a specific review and analyses of the marketing margins, price spreads and farm values.

6.4.1 Methodology and Results

The domestic prices of rice are captured at the three main nodes in the food chain namely: the import parity price, the list price, and the consumer price. The GMB white maize and the consumer prices are actual prices that are captured and reported by the GMB and the CSO database respectively.

Table 33: The Rice Value Chain January 2010

DETAILS:		Unit	Jan 10
Supply of Rice			
Imports of Rice			
Rice Price, Lilongwe FOB		US$/Tonne	630.17
Freight		US$/Tonne/km	0.02
Insurance (@ 3% FOB)		US$/Tonne	6.47
Duty (@ 0% for SADC & COMESA)		US$/Tonne	0.00
Discharge and clearing transport		US$/Tonne	3.00
Transport: Lilongwe to Harare (518km)		US$/Tonne	10.36
Landed Rice Price ex-Harare (a)			**650.00**
Procurement cost	**a**	**US$/Tonne**	**650.00**
Direct Expenses:			
Direct Labour		US$/Tonne	35.99
Packaging material		US$/Tonne	10.00
Consumables		US$/Tonne	1.00
Total Direct Expenses (b)	**b**	**US$/Tonne**	**45.00**
Indirect Overheads:			
Protective Clothing		US$/Tonne	0.71
Salaries		US$/Tonne	10.63
Repairs & Maintenance		US$/Tonne	2.00
Distribution expenses		US$/Tonne	8.40
Security		US$/Tonne	0.31
Depreciation		US$/Tonne	1.56
Insurance		US$/Tonne	1.00
Telephones		US$/Tonne	0.50
Postage		US$/Tonne	0.31
Printing and Stationery		US$/Tonne	1.20
Electricity		US$/Tonne	0.01
Advertising and Promotion		US$/Tonne	0.20
Other Administration Costs		US$/Tonne	2.68
Total Indirect Overheads (c)	**c**	**US$/Tonne**	**29.51**

Total cost before finance charges (a+b+c)	**d**	**US$/Tonne**	**724.51**
Finance charges		US$/Tonne	12.42
Break Even Selling Price	**e**	**US$/Tonne**	**736.93**
Retail Price@ 4% Mark Up	**f**	**US$/Tonne**	**766.41**

Source: GMB, Own Calculations

The mill door prices and the list prices are calculated on the table by making use of available information on the costs of processing and distribution informed by industry experts as well as various assumptions. Assumptions had to be made to construct the framework for the unpacking of the rice supply chain. The basic assumptions used in the calculation of this value chain are based on the same principles as the assumptions used in the calculation of the maize-to-maize meal value chain.

The costs and the profit of retailers were estimated after discussions with various industry experts. For the purpose of this study, an estimated 4% mark-up on the break-even price level of rice is given as an average representative estimate for the industry. Any possible rebates on large transactions were not taken into account.

The price of US$650/tonne reflected in the Table 29 is therefore used as a benchmark for the procurement price for large scale producers. The import parity price for rice is derived from the price of the "cheapest rice brand" on the market, which is the GMB's SILO rice. While the GMB price is used as a reference price in this study, industry specialists feel that specific transactions differ based on the buyer-seller relationship and also the time in the year (due seasonal rice price fluctuations). However, it was decided that for the purposes of these calculations, a GMB based procurement price of rice will reflect the "best case" scenario because GMB is a large scale buyer and therefore subject to rebates and other discounts. Despite the GMB's social role, rice packaging is largely seen as a profit-making enterprise, and also a diversification strategy for the large scale processors.

Total processing costs are estimated at US$199.51/tonne (*d-a-b-c*) and total packaging costs (excluding distribution costs) are estimated at US$45.00/tonne (refer to *b* in Table 29). The total costs of rice processing (excluding packaging) are estimated at US$154.51/tonne (*d-b*). The total cost of landing the rice from Lilongwe is US$29.83/tonne (*a-farm gate price*).

Table 34: Summary statistics of value chain calculations

		Units	Dec 2010
Manufacturer-to-Retail margin	*(f-a)*	US$/ton	116.41
Raw material as percentage of retail price	*(f-d)/f*	%	5.47%
Processing costs as a percentage of retail price	(b+c)/f	%	9.72%
Packaging as percentage of retail price	*b/f*	%	5.87%

Source: Own calculations

The manufacturer-to-retail margin (Table 30) is calculated by deducting the total costs of rice processing from the rice retail price. Table 30 reports a manufacturer-to-retail margin of US$211.93/Tonne (US$766.41-US$650.00). Within this margin of "price gap" lays the total costs of administration and marketing of the retailers and wholesalers as well as the profits of the wholesaling and retailing. Similar to the miller-to-retail margin not many assumptions are made to obtain the manufacturer-to-retail margin and, therefore, a great deal of emphasis is placed on this measure.

6.5 Constraints in the Rice Value Chain

Domestic rice production in Zimbabwe is particularly trivial and the nation relies more on imports to meet local demand. Within this context the following have been identified as key constraints hindering growth within the subsector; these include;

- Lack of Foreign Direct Investment (FDI);
- Limited lines of credit and therefore lack of access to working capital;
- In some cases the government policies on duty and taxes charged on imported technology discourages local processing and manufacturing.
- Improved processing efficiency will result in low costs of processing

6.6 Conclusion and Recommendations

Zimbabwe does not possess a comparative advantage in rice production and is therefore a net importer of the grain. This creates an opportunity for Zimbabwe to engage in increased trade with other traditional rice producers within the region, particularly Malawi.

Generally processing of rice and other rice products is confined to packaging and branding. The rice sector plays a critical role in dietary diversity and food security. Although Zimbabwe is a net importer of rice, the commodity has vibrant multiple marketing channels. These can be strengthened with sustainable strategies involving the processor and the international growers in order to increase the supply base. To that end, the following recommendations are suggested:

- Promote growth of small scale processing
- Joint venture partnerships between importers (locals) and exporters (in other countries).
- Creation of an accurate comprehensive database on prices, output, imports, exports from which a much richer analysis can be done.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Grain Production

7.1.1 Constraints in Grain Production

From the survey conducted among grain producers and grain producer associations, growth of grain production is hampered by a myriad of constraints that range from equipment and input supply bottlenecks to marketing problems. In grain production, progress is limited by:

- Limited access to working capital and difficulties in accessing agricultural finance emanating from unfavourable borrowing conditions;
- Inconsistent and uncertain input supply, exacerbated by the failure to mobilize resources to acquire production inputs;
- Erratic supply and increased cost of fuel coupled with frequent electrical power cuts;
- Current high costs of production inputs (seed, fertilizer, chemicals etc.) resulting in a decline in the levels of production hence shortages of raw material.
- Frequent droughts resulting in crop failure;
- Lack of commercial farming skills due to inadequate training in production and crop management emanating from poor extension services and therefore limited transfer of technology from research.

In marketing their grain commodities, farmers face numerous constraints including:

- Low grain prices that are insufficient to cover production costs;
- Limited access to market information from extension service;
- Limited access to appropriate packaging material for processed products, lack of marketing skills;
- Inadequate support services from training institutions, private sector consultants, small enterprise advisors and research institutions.
- Poor cash flow emanating from low volumes of grain hence low income is realised;
- Therefore limited capacity to mobilise capital for equipment purchase and working capital.
- High cost of transport; and
- Inadequate grain quality due to the lack of enforcement of standards by the GoZ quality assurance entities. The prevalence of substandard commodities on the grain markets at times forces the domestic supply base to be less competitive to higher quality grain imports.

7.1.2 Opportunities in Grain Production

Zimbabwe's grain production industry has the capacity to satisfy local requirements, and indeed to contribute to regional food security. However, this potential is constrained by a number of challenges and these challenges are particularly severe for smallholder farmers. Currently, Zimbabwe cannot meet its national grain requirements and depends on substantial grain imports to cover for its deficits. These high import volumes are against critically constrained foreign currency reserves that could otherwise be used for importing crucial raw materials that cannot be manufactured in Zimbabwe.

7.2 The Grain processing industry

7.2.1 Constraints in the grain-processing industry

Zimbabwe has experienced twelve years of a dramatic economic recession that has been characterised by a depleted assistance in International relief and donor funding in real terms. Given this scenario, it is imperative for Zimbabwe to develop adapted and innovative strategies that effectively augment the dwindling donor participation in fostering grain output growth and the processing industry. Growth of farm production is hampered by a myriad of constraints that range from equipment supply to problems faced by consumers of the technologies.

At the macro-level, the grain processing sector is limited by:

- Difficulties in accessing foreign exchange and lack of foreign direct investment;
- Lack of access to working capital;
- Limited access to up-to-date technology and also limited transfer of technology from research;
- Inadequate raw material inputs.
- Lack of information on grain markets
- Shortage of active commodity brokers

At firm level, agro-processors face numerous constraints including:

- Poor equipment back-up service rendered by dealers, shortages and high cost of equipment and spares;
- Limited access to information from extension service;
- Limited access to appropriate packaging material for processed products,
- lack of marketing skills;
- Inadequate support services from training institutions, private sector consultants, small enterprise advisors, research institutions and engineering workshops;
- Erratic supply and increased cost of fuel coupled with frequent power cuts;
- Unreliable supply of raw materials, reduced demand for processed food products;
- Failure to meet food processing regulations pertaining to food safety and hygiene practices which need to be adhered to in the industry. Attention to hygiene and basic food safety procedures is found, at times, to be limited among informal enterprises. Knowledge of specific regulations and legislation governing food safety and hygiene issues is only evident among those processors who market their product through formal outlets. The required costs of meeting the Standard Association of Zimbabwe regulations are viewed by the more informal processors as prohibitive (Mhazo *et al*., 2007);
- High cost of processing equipment; and
- Limited capacity to mobilise capital for equipment purchase and working capital

7.2.2 Opportunities in the Grain Processing Industry

Agro-processing opportunities in Zimbabwe currently tend to favour growth and development of medium-scale processing industries. The prevailing economic environment typified by high interest rates and low FDI has led to the down-sizing of large-scale processing systems and upgrading small-scale processing industries. Part of the reason for down-sizing is also the fact that the demand for raw materials by large-scale manufacturers is currently not being met due to low national production levels hence the enterprises are operating below capacity. This has resulted in scaling down of business, massive staff retrenchments and/or closure of factories. Mhazo *et al* (2007) noted that some large-scale processors contemplated sub-contracting small and medium processors who were able to meet their set standards (e.g. Aroma Bakeries). The contractor in this case provides packaging

materials and takes responsibilities for transporting and marketing the product. This arrangement shifts raw material sourcing and processing risks away from the large-scale processor.

There is great potential in the development of medium-scale grain milling, bread-making enterprises, livestock feed manufacturing and oil processing as opportunities of market entry by medium-scale entrepreneurs increase. There are widespread periodic shortages of grain particularly in the drier parts of the country. Small and medium-scale agro-processing industries at RSCs, although strategically located to take advantage of both raw material and local markets are however less dominant in cereal milling and soybean oil processing. One area normally not addressed in post-harvest operations is that of rice processing as its production is not fully developed in Zimbabwe.

Common utilities such as roads/rail, power, water and communication are vital to the development of grain industries in both rural and urban areas. Most of these are dilapidated and need to be re-established in Zimbabwe. The most critical area that needs urgent attention is the energy sector. Extensive investments need to be put in place to revive and resuscitate power generation capacity as electricity is an important element to farming operations and agro-processing activities.

7.3 Recommendations

The grain production and agro-processing industry in Zimbabwe has the potential to meet the local needs as well as to export product that is surplus to domestic requirements. Medium-scale enterprises have the potential to create employment opportunities especially if the enterprises are nurtured to produce for both domestic and export markets. However, the sector currently faces many problems that emanate from various negative aspects of the national economy, uncertainty that exists over access to finance, advice, information and reliable markets. The major areas that need improvement in the industry are:

- The response of the agro-processing industry to the changes in the agrarian sector. With the reduced farm sizes and increased number of farmers, there is need to develop small- and medium-scale processing equipment that cater for the full spectrum of agricultural commodities produced in the country. Emphasis should then shift to small-scale farmers aspiring to own the processing technology to improving access to the technology such as the hammer mills/custom milling case. This can be achieved by creating conditions that favour establishment of on-farm agro-enterprises to promote on-farm value addition and increased incomes for farming communities.
- There is no clear strategy related to policy on agro-processing although it is the market for grain producers. Government policies with respect to SPS conditions that enhance performance of producers, and also those that promote regional trade to allow for imports for medium grain milling enterprises, livestock feeds manufacturers, and oil processors need to be put in place as a measure of expanding and promoting growth of domestic and export markets for locally produced grain. The institutional framework to support and enable market access can be moulded along the lines of ZIMACE and trade initiatives may be provided by organisations such as Zimtrade, Zimbabwe Investment Centre and the Export Processing Zone.
- Grain processing is a viable business venture given that there is a potential for high level of production of grain products and a wide range of small- and medium-scale processing enterprises across the country. Entrepreneurs need to be exposed to available technologies and the range of products that can be manufactured to encourage proliferation of new businesses.
- There is a need to enforce food safety and hygiene standards as well as to protect consumers against nutrient insecurity and undesirable tastes.
- The current farming practices require higher levels of mechanisation and a wider diversity of equipment designs so as to keep pace with changes in production techniques as new crops are introduced. It may no longer be viable now for individual farmers to own primary processing

equipment as the reduced farm sizes may not justify such investment. Encouraging establishment of processing service providers may lead to optimum utilisation of equipment and will take away from the farmer the worries associated with repairs and maintenance of equipment.

- Training offered to agro-processors needs to include business management skills as these are lacking in most business people. This entails that training in agricultural colleges and universities should also encompass the same to ensure competence of extension officers in the subject.
- The Department of Agricultural Engineering and Technical Services in the Ministry of Agriculture should broaden their knowledge and capacity to offer technical assistance and advice, support and extension services that cover an expanded farming sector with a wider range of specific needs, land ownership and therefore financing models.
- The most critical limiting factor in the large scale grain processing and oil expression sectors is limited access to Foreign Direct Investment (FDI). This has led to low capacity utilisation and delayed delivery of orders or complete failure to do so.
- Government's trade policy needs to strike a fine balance between local industry protection and promoting local domestic growth. Local millers are not allowed unfettered access to GM grain when in the end they compete with South African millers who have access to cheaper GM grain which costs about 47% less than organic grain (Musarara, Grain Miller Association Chairman, 2009)

7.4 Lessons Learnt

- Technology and input costs put certain production systems beyond the reach of most individual farmers, particularly small scale resource poor grain producers; hence technology access through timely access of input provision and through sharply targeted subsidies may be an option that government needs to continue to pursue. However, due to medium to long term sustainability concerns and the limited impact of previous programs designed along these lines, it is extremely critical to resuscitate local input production and the active participation of private sector in this regard. In reviving the local seed industry, industry players believe that the Mazowe valley belt could be effectively devoted to seed production and hence allow more smallholder farmers access to lower cost high yielding varieties.
- Currently, one survival strategy for large-scale processors is by sub-contracting medium-scale traders and processors that meet the required standards. The medium-scale players then supply commodities and processed products in bulk for large-scale entrepreneurs to pack and market.
- There is agro-processing information within the private and public sectors, but this has been kept unpublished for commercial purposes. As a result, crucial data on the grain industry was not been made available despite this data being crucial for proper planning and informed policy advice.
- The creation of a trading platform such as the Zimbabwe Agricultural Commodity Exchange (ZIMACE) is crucial for, among other things, reducing the risks and transactions costs as well as provision of standardised grain quality. The functions of the Futures Exchange are critical in the industry as they span also towards the creation of a comprehensive database with quality information on stocks, value chain players and prices. Alternatively, the formation of an information service (or an institution analogous to South Africa's South African Grain Information Service (SAGIS)) in this regard should be an important aspect that should be seriously considered to assume to role of information management that can be used for planning purposes. This is currently lacking in the current system of trading.
- Literature on small- and medium-scale agro-processing often leaves out the breakdown costs of value chain analysis. However in this study, a value chain cost breakdown was presented to reveal the input-output costs as a way of exposing the relative value shares of particular

value chain activities to the retail price. This approach helped to identify possible sources of market power and estimates of value chain costs in the value addition processes.

- This study not only documented commodity/sector-based value chains e.g. grain milling, oil pressing in the grain sectors but was also an exercise that coherently synthesized isolated literature.

7.5 Conclusions

The grain sector has a vital role to play in the national economic development of Zimbabwe. There is therefore a need to critically look at how the whole spectrum of grain industry players can be assisted in the production and manufacture of good quality grain and grain products that are affordable to consumers. This objective will be need to be addressed at policy level (trade and domestic) and farm/firm level.

At trade policy level, government needs to reformulate trade policy that is in line with the need to address the current food security demands. While market policy reforms have been a huge step in the right direction, Zimbabwe needs to adopt more prudent measures in addressing the food crisis by putting in place tariff measures that strike a fine balance between local industry protection and promotion of regional grain trade that fundamentally augments grain supply for the local market.

Apart from reduced tariffs, the government should consider relaxing the SPS measures to allow farmers access to GM grain to raise local productivity and competitiveness. According to Tafadzwa Musarara, Chairman of the Grain Millers Association, GMOs can provide high yields. South African GMO maize farmers realise yields of above 15tonnes/hectare compared to 3 tonnes/hectare of non-GMO maize. If Zimbabwe adopts GM maize, the cost of production per tonne will be reduced and this could make domestic farmers more competitive and productive. Meanwhile, grain millers argue that the importation of GMO grain is virtually impossible not only because millers have been barred from accessing such grain, but also because in few exceptional cases where it has been approved, the SPS policy rules applied to import the GM grain make it an unviable venture. This has raised the debate on whether the Zimbabwean milling industry should have unfettered access to GMO grains just like their South African counterparts, whose cheap imports are creating significant competition due to the fact that the local industry is forced to end up using organic maize due to stringent GMO import requirements. To inform this policy, government could grant preferential treatment in terms of budgetary allocation to research into bio-technology and GMO development by investigating economic costs and benefits of GMO production. However, according to the Standards Association of Zimbabwe (SAZ), government currently has no capacity for commercialising GMO grain production and research in this regard is still at the preliminary stage[34].

While the GoZ's stance on GMO grain has been sternly against local production of GM food, the current alternative option could be to continue to attempt to increase yields by increasing smallholder farmers' access to better seed varieties and inputs through coordinated interventions with NGO's and donors in executing sharply targeted subsidies. This option has however had limited impact to date and appears unsustainable in the medium to long term.

Training institutions and extension services should be encouraged to develop business models that can be adopted by both large scale and small scale farmers. Grain processors could form synergies with farmer organisations in an effort to organise the grain sector into a unified group to lobby government for better and improved grain trade policies and production environments so as to alleviate the constraints faced in the sector.

[34] Personal communication with Mr Abisai Mafa, Standards Association of Zimbabwe

As such, the dynamic nature of the grain value chain, from production level to the agro-processing industry necessitates frequent and periodic reviews. There is also a great need to review other supply chains for a wide range of other important agricultural commodities produced in the country such as sorghum, sunflower and groundnuts. The reviews would help to identify other specific and unique chain constraints which need to be addressed.

Based on the review of the grain industry in Zimbabwe, it is concluded that the country can become self reliant with regards to capacity in production and/or processing of cereal grain commodities. The following are the major sub-sectors that have been identified as future key drivers of the grain sector growth:

- Establishment of medium-scale grain milling enterprises
- Livestock feeds manufacturing at a localised level
- Processing and marketing of soybean oil
- Processing and marketing of processed grain products

While small-holder farmers stand to benefit from the growth of the agro-processing sector, their participation and livelihood can also be greatly enhanced through on-farm grain value addition. This will result in improved incomes and diets as well as diversification through vertical integration.

APPENDIX A

Table 28. Domestic & Trade Policy Reform Objectives & Key Policy Instruments

Dates	Domestic Policy Instruments & Programs	Policy Objectives and Results
1931 & 1934	Maize Control Act	▪ Established the maize board designed to support white commercial farmers through segregated marketing and pricing structure.
1950	Grain Marketing Act	▪ Established Grain Marketing Board (GMB) which assumed the storage, distribution and transportation function within the grain subsector
1930-1969	Farmers' Debt Adjustment Act (1935), Land Apportionment Act (1930), Seed Act (1965), Land Tenure Act (1969)	▪ This set of policies were designed to offer a comprehensive support system for white commercial farmers
	Department of Research & Specialist Services (DR&SS) (1947)	▪ Extension services provided for commercial grain farmers
	Agricultural Marketing Authority (AMA) (1967)	▪ Coordination of Maize Board activities and financing
1980 - 1986	Growth and Equity Initiative	▪ Grain marketing policies of the previous regime were maintained while implementing a pan-territorial and pan-seasonal pricing regime for all farmers, regardless of race
1987-1991	Export Retention Scheme and Export Revolving Fund	▪ Offered export incentives in order to stimulate export oriented production
1987	Two-tier Pricing System	▪ Instituted a two-tier system that gave communal grain farmers favourable terms of trade
1991-1997	Economic Structural Adjustment Program (ESAP)	▪ Due to fiscal deficit pressure grain markets were liberalized by reducing the role of GMB to price and supply stabilizer through purchases and sale operations; however, they remained in the market as the sole import/export of maize grain
1994-2000	Zimbabwe Commodity Exchange (ZIMACE)	▪ Established in 1994 as a competing entity to the GMB
1998 -2000	GMB Price Control	▪ Re-imposition of roller meal price controls due to the perceived failure of the private sector under conditions of rising grain prices ▪ Diversification of GMB's activities into maize meal processing
2001 - Present	'Fast-track' Land Reform Programme	▪ Implementation of the A1and A2and resettlement models
July 2001	The Grain Marketing Notice Statutory Instrument No. 235A	▪ Re-imposed controlled marketing by expanding the role of GMB within the market and restricting private agro-processing access to grain through required Memorandums of Understandings with the Board
March 2009	Grain Market Reform	▪ Removal of grain movement restrictions ▪ Removal of import duties

- Reduction of GMB role to buyer-of-last-resort

Source: Jayne & Rukuni 1993; Rukuni, 1994 & 2006; Muir & Muchopa, 2006; Jayne et. al., 1999; GIEWS, 2009

APPENDIX B

Staple Grain Survey Methodology

The primary purpose of the study was to establish the trade and market policy effects on volumes and prices in and across Zimbabwe. Because the time and resources to conduct the study were very limited, the study relied substantially on targeted key informants in the grain industry. Thus, the study initially used snowball sampling to target respondents and to cut on time and costs. In snowball sampling, the researchers asked key informants in key grain institutions to give referrals to other possible respondents within the grain industry.

In order to address the research objectives, specific survey instruments had to therefore be tailor-made for specific sub-sets within and across commodity sectors and these included:

- Farm-level,
- Medium-scale and large-scale millers,
- Oil-processors,
- Traders, and
- Retailer survey instruments

Background of Geographical Area

Zimbabwe is divided into ten provinces namely, Mashonaland East, Mashonaland West, Mashonaland Central, Manicaland, Matebeleland South, Matebeleland North, Masvingo, Manicaland, Harare and Bulawayo provinces. Traditionally, most of Mashonaland, part of Midlands and Manicaland provinces are in Natural Ecological Regions 1 and 2 which possess favourable climate and bio-physical conditions for intensive crop production and thus major grain producing regions. Masvingo and Matebeleland Provinces are largely dry and form the Natural Regions 3, 4 and 5, and these are traditionally deficit areas. The study had to therefore establish a framework within which a representative sample of respondents across provinces would be achieved.

Key Informant Interviews

Key informant interviews were done by identifying key resource persons in the grain industry, particularly those who chair grain industry associations at different levels of the chain. These include the Zimbabwe Commercial Grain Producer's Association, Zimbabwe Grain Millers Associations, Zimbabwe oil pressers associations and the Zimbabwe Retailers Associations. The study managed to interview all but one association, namely the Zimbabwe Retailers Association, whose details were not available. It is from these associations that respondents in the grain industry were systematically identified and sampled.

Other key institutions that were targeted included the Grain Marketing Board (GMB), Zimbabwe Revenue Authority (ZIMRA), research organisations such as the Agricultural Research Council (ARC), The Department of Agricultural Research and Extension Services (AREX) in the Ministry of Agriculture, and also targeted was The Ministry of Industry, Trade and Commerce.

Farm Sampling Methodology

Farm level instruments were used for 30 smallscale farmers to elicit information on volumetric and price grain data. Farmers were randomly sampled from four provinces namely ten from Mashonaland East and West, ten from Masvingo and ten from Manicaland. Whilst Mashonaland and Manicaland are traditional grain producing regions, Masvingo was meant to provide a comparison between farmers in dry regions and those in regions of more favourable climate. The extension officers had a checklist of farms in the respective wards from which the respondents were randomly sampled.

Opinions of farmers concerning ways in which government would establish better markets was elicited using a semi structured questionnaire which contained both open ended and closed questions.

While the thirty interviewed farmers were used merely to get the current state of the production environment from a smallholder perspective, it was imperative to engage other institutions to get sufficient farm level data on the smallholder and large scale farmers as well. The study therefore made use of farm-level data from the Zimbabwe Commercial Grain Producers Association and a cross-sectional survey of 540 households randomly selected farming households from the Agribank's baseline survey which was conducted between August and October 2008.

Medium-to Large Scale Miller Sampling Methodology

The study compiled a check-list from the Zimbabwe Grain Millers Association of all the grain millers in Zimbabwe. According to the checklist, Zimbabwe has approximately 485 grain millers, and their distribution is shown below:

Grain Miller Distribution in Zimbabwe

Province	Number of Millers
Harare	148
Masvingo	49
Mashonaland West	55
Mashonaland East	44
Matebeleland South	26
Matebeleland North	18
Midlands	38
Manicaland	23
Mashonaland Central	13
Bulawayo	71
Total	485

Source: Zimbabwe Grain Millers Association

It is from this list that the grain millers were randomly sampled, with each province getting a quota of the maximum number of respondents respectively. Based on the distribution of grain millers, the study employed a quota sampling technique in an effort to ensure a fair representative distribution of millers across the country. Based on the quota sampling calculation employed, the following number of respondents was sampled per province:

Quota Sample of Millers per Province

Province	Quota Calculation	Total Number Sampled	Rural/Peri-Urban	Urban
Harare	9.173554	9	4	5
Masvingo	3.03719	3	2	1
Mashonaland West	3.409091	3	2	1
Mashonaland East	2.665289	3	1	2
Matebeleland South	1.61157	2	1	1
Matebeleland North	1.115702	1	1	0
Midlands	2.355372	2	1	1
Manicaland	1.42562	2	0	1
Mashonaland Central	0.805785	1	1	0
Bulawayo	4.400826	4	2	2
Total		30	15	15

Source: BFAP/FAO Survey

The idea was to target respondents from all over the country, to include both the major producing regions and deficit regions respectively. This would allow us to get a contrast of the spatial prices, trading conditions and also insights into intra grain trade flows.

Oil-Processor Sampling Methodology

The Zimbabwe Oil Pressers Association only consists of 6 main players, 5 of them being the large-scale formal sector players. The apparent oligopoly meant that the study would interview all of the 5 major players. Nonetheless, information was difficult to obtain either through non-availability of staff, or because all key information became private and confidential beyond the company gate. Virtually all of the interviewed key players referred the researchers to the industry's Chairman, Mr Chinyani. As such, the study interviewed Mr Chinyani, who was the key informant for the Oil Expression Sector.

Trader Sampling Methodology

Grain Traders in Zimbabwe are found at various scales and levels and a key problem was how to define a grain trader. Wholesalers and supermarkets, informal traders, processors, and grain storage entities can all be classified as grain traders. The vertical integration mechanisms in the grain sector made it difficult to distinguish the target group. Nonetheless, a distinction had to be drawn on how to classify them, and for the purposes of the study, grain traders were defined as a person/institution engaged in the buying of grain from farmers or in the importation of raw or processed grain. This definition transversed across all players in the chain, but the target group for the study were importers since the rest of the chain players were covered through other survey instruments.

A purposive sampling technique was therefore used and cross border traders (small scale) were captured and interviewed at the Mutare Border Post, Plumtree Border Post and the Beitbridge Border Posts. In this case, purposive sampling was used in the selection of the sample because the respondents here were being based on the judgement of the researcher as to which subjects best fit the study's definition of a grain trader. Larger importers of grain such as the GMB, Croplink, Staywell and Intergrain were interviewed as targeted respondents to capture the large scale import and trade dimension of grain trade.

Retailer Sampling Methodology

There are numerous retailers in Zimbabwe and these are found in every town and Rural Service Centre (RSC) across the country. Due to the fact that we did not have a checklist, the researchers employed a convenience sampling technique that would subscribe to choosing the retail outlets that were easiest to reach during the time they interviewed the millers in the respective provinces. It was important however for the researchers to capture a variety of retailers, namely, wholesalers, supermarkets, convenience stores and tuck-shops. This meant that 9 retailers were interviewed in Harare (three wholesalers, supermarkets and tuck-shops respectively). Three retailers were interviewed in Masvingo, Mashonaland East and West as well as Matebeleland South respectively. Two retailers were interviewed for Matebeleland South, Midlands and Manicaland per province, while Matebeleland North and Mashonaland Central had a single retailer interviewed each. Bulawayo had four retailers interviewed, two supermarkets, one wholesaler and one sole trader. In total, 8 wholesalers, 12 supermarkets, 4 convenience shops and 6 tuck-shops were interviewed. A total of 12 retailers were found in either peri-urban areas or rural areas.

APPENDIX C

COMPETE
Tool for Trade Policy Field Survey and Analysis

A/Commodity coverage

- Maize,
- Wheat,
- Rice,
- Soybeans

B/Survey Instrument

1 Evaluate the current legal and regulatory framework for each commodity value chain

Against food shortage pressures, the GoZ officially suspended the use of the Zimbabwean dollar in February 2009 and introduced a multi-currency system as a measure meant to stabilise the economy and ensure viability in production of commodities. Along with the multi-currency system, the GMB price controls in grain markets were halted and as a result, all agricultural markets began operating in a free unregulated environment. The transition of grain markets into a free market environment has necessitated vast adjustments. Pursuant to the policy of deregulation has been the removal of the GMB monopoly as a grain purchaser and the abolishment of the practice of announcing pre- and post-planting producer prices, leaving the GMB as the purchaser of last resort (GoZ, 2009). The GMB therefore only announces prices, which merely reflect the expectations of the government on the grain markets. Domestic grain producers are now exposed to competition from more efficient international producers that are usually highly subsidized, while domestic traders now have the option to purchase domestic and/or imported grain.

1.1 Tariffs

a) Using the template below, obtain from the Revenue Authority, the current level of tariff applicable on imports of staple foods from the region and outside the region

Soybean and Soybean Products Applicable Import Duty (%)

Product	Customs Duty				VAT	SURTAX		
	General	COMESA	RSA	SADC	VAT	General	COMESA	SADC
Soybeans (broken or unbroken)	5	2	0	0	15	0	0	0
Soybean flour and meal	10	5		0	15	0	0	0
Cooking oil of soybean oil	40	5	0	15	0	0	2	0
Other soybean Oil (excl. crude) & its fractions	10	5	0	0	15	0	0	0
Expoxidised soybean oil	5	0		0	15	0	0	0
Soya Sauce	40	8	30	15	15	0	2	0
Oilcake & other solid residues of soybean	10	0	0	0	15	0	0	0

Source: Zimbabwe Revenue Authority (2009)

Rice and Rice Products Applicable Import Duty (%)

Product	Customs Duty			VAT	SURTAX		
	General	COMESA	SADC	VAT	General	COMESA	SADC
Rice in the husk (paddy or rough)	10	0	0	0	0	0	0
Husked (brown) rice	10	0	0	0	0	0	0
Semi-milled or wholly milled rice (polished or not)	10	0	0	0	0	0	0
Broken rice	15	0	0	0	0	0	0
Liquorice sap and extract	10	0	0	15	0	0	0
Other bread and cakes	40	8	10	15	0		0
Dentifrices	40	9.5	15	15	0	2	0

Source: Zimbabwe Revenue Authority (2009)

Wheat and Wheat Products Applicable Tariffs (%)

Product	Customs Duty				VAT	SURTAX		
	General	COMESA	RSA	SADC	VAT	General	COMESA	SADC
Durum wheat	0	0		0	0	0	0	0
Spelt, common wheat and meslin	0	0		0	0	0	0	0
Other wheat and meslin	0			0	15	0		0
Buckwheat	10	6.5	12.5	0	15	0	0	0
Wheat or meslin flour	25	0		5	0	0	0	0
Groats and Meal of wheat	20	2	0	0	15	0	0	0
Wheat Starch	15	4		0	15	0	0	0
Wheat Gluten, whether dried or not dried	15	2		0	15	0	0	0
Bulgur wheat	40	5		10	15	0	2	0
Brans, sharps and other residues of wheat	10	0		0	15	0	0	0

Source: Zimbabwe Revenue Authority (2009)

Maize and Maize Products Applicable Tariff (%)

Product	Customs Duty				VAT	SURTAX		
	General	COMESA	RSA	SADC	VAT	General	COMESA	SADC
Maize Seed	10	0	0	0	0	0	0	0
Maize (Excluding Seed)	0	0	0	0	0	0	0	0
Maize (Corn) Flour	25	0	0	10	0	0	0	0
Groats and Meal of Maize (Corn)	20	2	0	10	0	0	0	0
Other worked Grains of Maize (corn) nes	20	5	0	0	15	0	0	0
Maize (Corn) Starch	10	4	10	0	15	0	0	0
Crude Maize (corn) oil	10	0	0	0	15	0	0	0
Cooking Oil of Maize	40	5	0	15	0	0	2	0
Other maize (corn) oil (excl. Crude) & Fractions	10	5	0	0	15	0	0	0
Other prepared cereals in grain form (excl. Maize)	40	5		10	15	0	2	0
Brans, Sharps and Other Residues of Maize	10	0	0	0	15	0	0	0

Source: Zimbabwe Revenue Authority (2009)

Through interviews with a selection of representative stakeholders (producers, traders, processors):

b) Establish concerns related to the actual application of the tariffs when importing products from EAC, COMESA, SADC and Rest of the World.

- Tariffs on basic raw grains for maize, wheat and soybean have been duty free to alleviate food shortages. Producers feel this may be undesirable for future domestic growth in production because they cannot compete with more efficient foreign producers given the fact that most inputs are being imported. Traders have been opting for cheaper grain imports rather than local production which is increasingly becoming unprofitable even at import parity prices.

- Traders and processors also feel that duty free imports for specific processed grain products such as Palm oil may harm future growth of the agro-industry.

- Regulatory authorities feel that in the short to medium term, tariffs in place serve to ease food shortages and bring viability to production.

c) Obtain views on whether the tariff applied on imports from third countries (CET) is appropriate and if not their proposal of alternative tariff,

1.2 Non tariff charges

a) On imports

Non Tariff Item (e.g SPS Inspection Fees, Standards Inspection Fees, Health Inspection Fees, Clearing Agents Fees, etc	Description	Charges	Estimated Cost per 1 tonne US $
Fumigation Charges	Phosphorine applied @ 2g/tonne		US$1/tonne
Moisture Test	Should be less than 3% for all grain		US$0.50/sample
Health Inspection Fees	An inspector from the Plant quarantine service (PQS) in the Ministry of Agriculture has to inspect the grain from the exporting country, from the point of packing to the point of entry into the country. The costs of inspection are borne by the importer		
Clearing Agents Fees	All processes of importing grain are done through a clearing agent from the Zimbabwe Revenue Authority (ZIMRA)		

b) On in country movement of products

Non Tariff Item (Local Authority Cess, etc.)	Description	Charges	Estimated Cost per 1 tonne US $
NGO's eg World Food Programme (WFP), World Vision Care etc.	NGO's pay a different rate from farmers and private traders. Transport costs vary per transport company, but these bid prices through a tender process.	The working average in the road transport sector is US$0.14/tonne/km	US$0.14/tonne/km
Farmers and Private Traders	Farmers and other private traders have a different concessionary transport rate from NGO's, charged on a per loaded km basis	US$2.00/loaded km	US$0.02/tonne/km

c) Obtain traders' and regulatory authorities' opinion on the effects of the non tariff charges on trade flows and their recommendations for changes to these charges

Zimbabwe's SPS conditions are very strict and costly, and they have acted as a serious barrier to cross border grain trade. Cumulative charges of non-tariff charges amount to a substantial portion of total import costs and as a result, processors don't import soybean seed or as much grain. SPS conditions need to be revised and relaxed in line with food needs and promoting grain trade.

Recommendations
Relaxation of SPS conditions on GM food crops particularly maize, wheat and soybeans.

1.3 Customs documents, clearance procedures and release time

When importing grain, an importer has to obtain a Permit from MoA which would outline and include quantity and type of grain to be imported. This permit has to be in at least two copies:

The Original –for the Zimbabwe Revenue Authority (ZIMRA) filing
A Photocopy- for marking off against balance yet to be cleared out of the country

Documents Required to clear imports of staple foods	Procedure for Customs Clearance			
	Location where the documents are obtained from	Fee for accessing the documents	Procedure for lodging the documents for customs clearance	Traders concerns with fees and procedures
A CD 1 Form	Commercial Banks	n/a	n/a	
An Import Bill of Entry	Clearing Agent	n/a	n/a	
An Invoice	Seller of grain	n/a	n/a	
A Consignment Note	Seller of Grain	n/a	n/a	
		n/a	n/a	

1.4Standards

a) Standard specification

Provide details on standards specifications for the staple food crops (using the format below) that are applicable in the country: -

i) Product: Maize

ii) Type of standard: National [X] or Regional COMESA [ ] EAC [ ] SADC [ ] tick appropriately

iii) Summary of specifications (in tabular form e.g Moisture, etc)

Item	Description
Genetically Modified Maize	No GM raw maize imports allowed. Only allowed on condition that they are milled immediately upon arrival. Genetically modified maize meal may be imported after being inspected to the satisfaction of the Plant Quarantine Services Inspector.
Insect Free	Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis)*
Fumigated	The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.
Fumigation certificate	▪ The consignment is accompanied by a fumigation certificate.
Packaging	▪ The consignment is packed in clean bags or containers.
Moisture Content	▪ Moisture content should be less than 3%

GM standards

i) Product: Wheat

ii) Type of standard: National [X] or Regional COMESA [ ] EAC [ ] SADC [ ] tick appropriately

iii) Summary of specifications (in tabular form e.g Moisture, etc)

Item	Description
Genetically Modified Wheat	No GM raw wheat imports allowed. Only allowed on condition that they are milled immediately upon arrival. Genetically modified flour may be imported after being inspected to the satisfaction of the Plant Quarantine Services Inspector.
Insect Free	Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis).* The wheat grain should come from areas free from Karnal Bunt *(Tilletia Indica)*
Fumigated	The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.

Fumigation certificate	▪ The consignment is accompanied by a fumigation certificate.
Packaging	▪ The consignment is packed in clean bags or containers.
Moisture Content	▪ Moisture content should be less than 3%

i) Product: Soybean

ii) Type of standard: National [X] or Regional COMESA [ ] EAC [ ] SADC [ ] tick appropriately

iii) Summary of specifications (in tabular form e.g Moisture, etc)

Item	**Description**
Genetically Modified Soybean	No GM Soybean may be imported
Insect Free	Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis)*
Fumigated	The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.
Fumigation certificate	▪ The consignment is accompanied by a fumigation certificate.
Packaging	▪ The consignment is packed in clean bags or containers.
Moisture Content	▪ Moisture content should be 2-3%

i) **Product: Rice**
ii) **Type of standard: National [X] or Regional COMESA [ ] EAC [ ] SADC [ ] tick appropriately**
iii) **Summary of specifications (in tabular form e.g Moisture, etc)**

Item	Description
Insect Free	Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis)*
Fumigated	The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.
Fumigation certificate	▪ The consignment is accompanied by a fumigation certificate.
Packaging	▪ The consignment is packed in clean bags or containers.
Moisture Content	▪ Moisture content should be less than 3%

b) Application of the standards – for imports

i) For each of the staple foods explain the procedure which importers are required to observe in order to have their products certified as having met the standards

A number of conditions exist for those wanting to import grain and these include a thorough pre-shipment inspection from the Plant Quarantine Services (PQS) to establish if the imported grain is:
- Free from pests e.g. borers like weevils, grain borers, Angoumois moths, beetles
- Free from diseases.

If the grain is meant for propagation, the inspectors are supposed to inspect the plants whilst in the field. This implies that the inspector has to go to the exporting country to inspect the processes as well as to verify the crops at the farm, all at the cost of the importer.

Mandatory requirements for grain importer prescribe that grain should be fumigated with phosphin at 2g/tonne for a period of 24 hours before shipment and this should be accompanied by a fumigation certificate. The grain should also be packed in clear and well labelled packages. Moisture content should be adequate to avoid germination and rotting hence the need for the inspector. This is meant to avoid diseases because moist grain can also act as a vector of diseases and pests that may affect grain production in Zimbabwe. The import consignment should be accompanied by a PSP certificate with additional declaration that: seed for consumption and oil extraction should be:

- Free from plant debris
- Packed in new containers/packages
- Free from live insects and fungal growth
- Free from mould growth, especially Aspergillus flavours

ii) Is standard inspection service available in all points of entry? Yes [X] No [ ]
iii) If No, what arrangement is put in place to avail the service to importers on time?
iv) Does the National Bureau of Standard have mutual recognition with standards bureau in the region (indicate by ticking where applicable):
EAC Yes[ ]/No[ ]; COMESA – Yes [ ]/No [ ] SADC – Yes [ ]/No [X]

c) Application of the standards – for Exports

Zimbabwe has not been exporting any grain since 2001 due to an export ban. This section not applicable

1.5 Sanitary and Phytosanitary Requirements

Grain imports coming into the country are subject to strict Sanitary and Phyto-sanitary (SPS) requirements, which have acted as a barrier to free cross-border grain trade. Initially, SPS requirements prohibited the importation of Genetically Modified[35] (GM) raw grain. Under the Statutory Instrument 20/2000 Biosafety Regulations, the Research Council established the Biosafety Board to approve the safety of imports of GM grain and grain products. While initially rejecting GM food aid, Zimbabwe later accepted grain provided all GM grain was milled immediately upon arrival[36]. GM grain and grain products are thus imported at the prevailing duty costs plus costs of ensuring that such products are safe, and also costs of preventing risks of contamination.

a) SPS specification

Provide details on SPS specifications for the staple food crops (using the format below) that are applicable in the country: -

i. **Products:** Maize, Soybeans, Wheat and Rice

ii. **Summary of SPS measures required for each product (in tabular form)**

Maize

Item	Description
Insect Free	Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis)*
Fumigated	The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.
Fumigation certificate	▪ The consignment is accompanied by a fumigation certificate.
Packaging	▪ The consignment is packed in clean bags or containers.

Source: MoAMID (2009)

[35] Current policy prohibits importation of GM grain as Zimbabwe is a signatory of the Biosafety Protocol of 2003.

[36] Training module on the WTO agreement on Sanitary and Phyto-sanitary measures: http://www.unctad.org/en/docs/ditctncd20043_en.pdf and also see "Bridges Trade BioRes", 11 July 2002, at: http://www.ictsd.org.

Wheat

Item	Description
Insect Free	Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis)* The wheat grain should come from areas free from Karnal Bunt *(Tilletia Indica)*
Fumigated	The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.
Fumigation certificate	▪ The consignment is accompanied by a fumigation certificate.
Packaging	▪ The consignment is packed in clean bags or containers.

Source: MoAMID (2009)

Soybeans

Item	Description
Insect Free	Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis)*
Fumigated	The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.
Fumigation certificate	▪ The consignment is accompanied by a fumigation certificate.
Packaging	▪ The consignment is packed in clean bags or containers.

Source: MoAMID (2009)

Rice

Item	Description
Insect Free	Grain is free from the following and other storage insects pests such as larger grain borer, *(prostephanus trancatus),* Angoumuis moth *(Sitotroga ceralella),* Kharpra beetle *(Trogoderma granarium),* lesser grain borer *(Rhizopertha dorminica)*, Grain weevils *(Sitophilus sp),* Red flour Beetle *(Tribolium castaneum),* Saw-toothed grain beetle *(Oryzaephilus surinamensis)* For wheat; the grain should come from areas free from Karnal Bunt *(Tilletia Indica)*
Fumigated	The grain has been fumigated with Phosphine at 2g per tonne for a minimum period of 120hrs.
Fumigation certificate	▪ The consignment is accompanied by a fumigation certificate.
Packaging	▪ The consignment is packed in clean bags or containers.

Source: MoAMID (2009)

b) Application of the SPS measure – for imports

i. For each of the staple foods explain the procedure which importers are required to observe in order to have their products certified as having met the SPS meaures

When importing grain, an importer has to obtain a Permit from MoA which would outline and include quantity and type of grain to be imported. This permit has to be in at least two copies:

- The Original –for the Zimbabwe Revenue Authority (ZIMRA) filing
- A Photocopy- for marking off against balance yet to be cleared out of the country

Other relevant documentation which the exporter should have includes:

- A CD 1 Form from any Commercial Bank
- An Import Bill of Entry from your Clearing Agent
- An Invoice
- A Consignment Note

The customs clearance procedure has to be facilitated by a 'Clearing Agent'. The importation of the grains is subject to their various tariffs and restrictions as per gazetted Standing Instructions of that period.

ii. Is SPS inspection service available in all points of entry? Yes [X] No [ ]

iii. If No, what arrangement is put in place to avail the service to importers on time?

iv. Does the National Bureau of Standard have mutual recognition with standards bureau in the region (indicate by ticking where applicable):

EAC Yes[ ]/No[ ]; COMESA – Yes [ ]/No [ ] SADC – Yes [ ]/No [X]

NB: The Standards Association of Zimbabwe (SAZ) has so far not been contacted as their details were not readily available.

c) Application of the SPS – for Exports

No grain exports from Zimbabwe since 2001 due to a standing export ban

d) What challenges do SPS Authorities face in facilitating cross border trade in staple foods and what should be done to address the challenges? Use the format below to provide the summary of the response.

Challenge faced by SPS Authorities in facilitating cross border trade of staple foods	**Proposed solutions**
Standard Association of Zimbabwe (SAZ) reports that the capacity to monitor is impaired by lack of sufficient funding for implementation of monitoring and inspection activities.	Adequate financing of the Units and Departments involved in monitoring and inspection of grain.

e) What challenges do traders of staple foods face in meeting SPS requirement for cross border trading and what should be done to address these challenges. Use the format below to provide the summary of the response.

Challenge faced by Grain Traders in cross border trade of staple foods	Proposed solutions
Transport Costs are expensive and beyond the reach of small traders who sometimes resort to using public transport for trading grain.	Access to credit and subsidised transport services
Current free domestic market conditions have led to lower food prices which has rendered small-scale cross-border trading of grain largely unprofitable	
Small grain traders lack access to packaging materials as prescribed by SPS requirements	Relaxing SPS requirements or Support in the provision of packaging material
Costs of clearing grain imports are high	Provide lines of credit

1.6 Seasonal Export/import restrictions

a) Seasonal Export restriction

	(i) Is there legal provision in the country's statutes for export restrictions (ban) to be used *(Indicate by inserting Yes/No as appropriate)*[37]	(ii) If yes, cite the specific statute(s) and Article(s) and the responsible Ministry(ies)/Institution(s)	(iii) Give the trigger condition as provided in the law/statute for imposing export restriction/ban	(iv) Give dates when export restriction/ban was instituted in the last 5 years (in each give date when imposed and date when removed, citing the official legal/gazette notice)	(v) Describe the mechanism (if it exists) for involvement of the private sector before the export ban is introduced. If the mechanism does not exist just indicate in this column that such a mechanism is not in place)
Maize	Yes	The Grain Marketing Notice Statutory Instrument No. 235A: Responsible authority: MoA	The collapse of the Strategic Grain Reserve (SGR)	1998	Private sector was not involved in export trade. Only the GMB was responsible for imports and exports of maize
Wheat	Yes	The Grain Marketing Notice Statutory Instrument No. 235A: Responsible authority: MoA	The reconstitution of the GMB through the Grain Marketing Act [*Chapter 18:14*] .	2000	Private sector was not involved in export trade. Only the GMB was responsible for imports and exports of wheat

[37] Exports have been banned on all grains since 2001 by government.

	(i) Is there legal provision in the country's statutes for export restrictions (ban) to be used *(Indicate by inserting Yes/No as appropriate)*[37]	(ii) If yes, cite the specific statute(s) and Article(s) and the responsible Ministry(ies)/Institution(s)	(iii) Give the trigger condition as provided in the law/statute for imposing export restriction/ban	(iv) Give dates when export restriction/ban was instituted in the last 5 years (in each give date when imposed and date when removed, citing the official legal/gazette notice)	(v) Describe the mechanism (if it exists) for involvement of the private sector before the export ban is introduced. If the mechanism does not exist just indicate in this column that such a mechanism is not in place)
Rice	NA	NA	NA	NA	NA
Soybean	Yes	The Grain Marketing Act	NA	2000	No exports from the private sector due to GMB monopoly

vi) **For each period (during the past 5 years) where an export restriction/ban has been imposed: -**

a) Attempt to establish the level of unrecorded cross border export of the product during the period of export restriction/ban. The study should rely on available information from cross border monitor projects and recent cross border trade studies.

N/A

b) Through targeted interviews, obtain views from farmers, traders and processors on the impact of the export ban on investments, production and trade.

The export ban, though it may have good intentions in the normative sense, has not been effectively implemented. During years of acute food shortages and poor domestic prices caused by price controls, individual farmers still exported wheat and maize to Zambia in defiance of the ban. This of course is not recorded.

c) Seasonal Import restrictions

	(i)[38] Is there legal provision in the country's statutes for import restrictions (ban) be used *(Indicate by inserting Yes/No as appropriate)*	(ii) If yes, cite the specific statute(s) and Article(s) and the responsible Ministry(ies)/Institution(s)	(iii) Give the trigger condition as provided in the law/statute for imposing import restriction/ban	(iv) Give dates when import restriction/ban was instituted in the last 5 years (in each give date when imposed and date when removed, citing the official legal/gazette notice)	(v) Describe the mechanism (if it exists) for involvement of the private sector before the import ban is introduced. If the mechanism does not exist just indicate in this column that such a mechanism is not in place)
Maize	Yes	Importation of maize subject to issuance of an import permit by the MoAMID.	Grain Marketing Act [*Chapter 18:14*].		
Wheat	Yes	Importation of wheat subject to issuance of an import permit by the MoAMID.	Grain Marketing Act [*Chapter 18:14*].		
Rice	Yes	Importation of rice subject to issuance of an import permit by the MoAMID.	Grain Marketing Act [*Chapter 18:14*].		
Soybean	Yes	Importation of soybean subject to issuance of an import permit by the MoAMID.	Grain Marketing Act [*Chapter 18:14*].		

vi) **For each period (during the past 5 years) where an import restriction/ban has been imposed: -**

a) Establish level of unrecorded cross border imports of the product during the period of import restriction/ban. The study should rely on available information from cross border monitor projects and recent cross border trade studies.

Rice Imports from Cross-border Trade

Source	**2009/10**	**2008/09**
Malawi	630	0
Mozambique	174	869
South Africa	19	11
Zambia	312	797
Total	1135	1677

Source: Famine Early Warning Systems (FEWSNET)[39]

[38] Before the grain markets were liberalised, it was the institution of the Grain Marketing Notice Statutory Instrument No. 235A of July 16 2001 that controlled prices and marketing maize and wheat markets, making the GMB a,monopoly in import and export, trading

Maize Imports from Cross-border Trade

Source	2009/10	2008/09
Mozambique	10	98
South Africa	227	285
Zambia	3,675	12
Total	3912	395

Source: Famine Early Warning Systems (FEWSNET)

b) Through targeted interviews, obtain views from farmers, traders and processors on the impact of the ban on investments, production and trade. Select case studies will suffice.

1.7 Pricing and marketing policies

a) Role of Government in pricing and marketing of staple foods

	(i) Is the Government, through the marketing Agent involved in setting buying prices at harvest (Yes/No)	(ii) If Yes, give the specific stature and Article(s) on which this role is based	(iii) If the Government is involved in purchase, give the official capacity and actual purchases in 2008		(iv) If the actual purchase is lower than the official capacity, give reason for the shortfall	(v) Government installed versus utilization storage capacity	
			Official Capacity (in metric tonnes)	Actual Purchase in 2008 (in metric tonnes)		Installed storage capacity in 2008	Utilized storage capacity in 2008
Maize	No						
Wheat	No						
Rice	No						
Soybeans	No						

vi) Assess the impact of Government involvement in pricing and marketing of the specific staple food crop in 2008 on: -

a) Cost effectiveness by comparing resources used in purchasing the crop against the cost if market determined price[40] were to be applied
b) Clearing all products on offer by comparing the volume absorbed by the Government against total output
c) Production

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[39]http://www.reliefweb.int/rw/RWFiles2009.nsf/FilesByRWDocUnidFilename/JBRN-7XJDLB-full_report.pdf/$File/full_report.pdf

[40] U*se import parity price as proxy for market determined price*

d) Investments in production and post harvest storage facilities
e) Supply of input services

b) Role of the private sector in marketing of staple foods

i) Provide an inventory of the private sector firms/associations that are involved in trading of the specific staple foods.

	Number of Firms/Associations[41] involved in trading of the specific staple food in 2009		Storage capacity by the private sector in metric tonnes in 2009
	Wholesale	Retail	
Maize	485	Pending	1,825,000
Wheat	38	Pending	180,000
Rice	9	Pending	300,000
Soybeans	6	Pending	530,000

ii) List constraints which traders face in trading in the specific staple food product and their proposed recommendations to address the constraints.

1.8 Regional structured trading system platform

a) Food balance sheet

i) Provide details of the country's food balance sheet for 2008

- Product coverage

Maize Wheat Soybeans and Rice

- Content

Grain Balance sheets are an outlay of the total demand and supply in a particular grain sector. The balance sheets essentially contain the quantities of production, opening stock, imports, exports, human demand, livestock feed demand, seed demand and closing stocks as key variables that capture grain availability and utilisation.

- Procedure for construction of the food balance sheet

The procedure for constructing a balance sheet is to identify the variables (already mentioned) that make up supply and demand and find the data for these specific variables. This will include unofficial estimates and unrecorded data that may arise from shortfalls in the formal data collected by various institutions such as Ministry of Agriculture and NGO's.

- Role of the private sector (national consultative mechanism on food balance sheet)

Much of grain trade under free markets occurs outside government systems and control. This means that much of the trading is within the private sector, making the private sector a key collective of market players in the determination of supply.

- Application of the food balance sheet as a policy tool

The purpose of the maize balance sheet is to essentially allow for the determination of over and under supply of grain in any given consumption period (Jacobs & Sumner, 2002). The balance sheet is moreover essential to provide a clear picture of the state of the markets, and thus allow for planning and appropriate policy interventions.

[41] This to be supported by a schedule giving name of firm/association, location, contact persons, address, telephone, email and storage capacity in 2009

- Dissemination of information on the food balance sheet

The dissemination of information on the food balance sheet is crucial for all stakeholders, particularly government as it allows for informed corrective policy measures to be taken. Below are the food balance sheets for each of the grain subsectors.

Maize

Variable	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Supply						
Production	1.68	0.92	1.49	0.95	0.47	1.24
Opening Stock	0.09	0.12	0.07	0	0.15	0.03
Imports						
• Gvt and Private Imports	0.34	0.18	0.69	0.25	0.34	0.46
• Food Aid	0.25	0.07	0.13	0.16	0.33	0.3
• Informal[42]	-	0.13	0.002	0.001	0.002	0.023
Total Supply	**2.36**	**1.30**	**2.38**	**1.36**	**1.14**	**2.04**
Demand						
Human use	1.53	1.55	1.69	1.75	1.63	1.83
Feed use*	0.15	0.13	0.14	0.44[43]	0.15	0.150
Seed use*	0.11	0.1	0.06	-	0.048	0.048
Losses*	0.08	-	-	-	0.040	0.006
Closing stocks	0.12	0.07	0	0.15	0.032	0.05
Total demand	**1.98**	**1.85**	**1.84**	**2.34**	**1. 9**	**1.83**
Surplus/Deficit	**0.37**	**-0.55**	**0.54**	**-0.86**	**-0.6**	**-0.22**

Source: Kapuya (forthcoming).

NB: Based on information collated from GIEWS/FAO (2009), AIAS (Various Issues), *FAO (Various Issues), USAID-FEWSNET (2007; 2009) and MAMID (Various Issues)

[42] Cross-border informal maize imports from South Africa, Zambia and Mozambique

[43] Aggregate of feed, seed and losses

Wheat Balance Sheet (2008/09)

Wheat Supply			
Opening Stock			1,000
Production			12,000
Imports			
	Private Company Imports	150,070	
	Individual Imports	4,910	
	NGO Imports	0	
	GMB	0	
	Total Imports		154,980
Total Supply			**167,980**
Demand			
Human requirement		400,000	
Food use		176	
Feed use		0	
Seed use		2,300	
Losses		600	
Closing stocks		300	
Total Demand			**403,376**
Cereal Surplus/Deficit			**-235,396**

Source: GIEWS (2009), FAO (2009)

Soybeans

Supply	
Opening Stock	0
Production	115,800
Imports	13,335
Total Supply	**129,135**
Demand	
Requirements	141,500
Exports	0
Closing Stock	1,000
Total Demand	**142,500**
Cereal Surplus/Deficit	-13,365

Source: GIEWS (2009), FAO (2009), MoAMID (2009), Zimbabwe Oil Pressers Association (2009)

Rice

Opening Stock			-
Production			600
Imports			
	Private Companies	121,231.90	
	Individuals	26,066.43	
	NGO's	440.518	
	Food Aid Imports	146,738.80	
	Informal Cross Border Imports	8,680	
Total Imports		303,158	
Total Supply			**303,757.65**
Human Demand			**303,757.65**
Cereal Surplus/Deficit			**0.00**

Source: GIEWS (2009), FAO (2009), MoAMID (2009)

ii) Obtain views from the public and private sector stakeholder institutions on: -

- Need for a regional food balance sheet as an information tool on regional availability of staple foods to meet regional food security needs
- Appropriate mechanism for assembling regional food balance sheet
- Policy use for the regional food balance sheet

b) Warehouse Receipt System (as applicable)

i) Provide inventory of the WRS in the country, giving details of products that are traded through this system and volume of trade in 2008

ii) Document challenges faced in running of the WRS and recommendations from the stakeholders on how these challenges could be overcome

iii) Evaluate the current legal and regulatory framework under which the WRS operates and obtain stakeholders proposals on any changes that may be preferred.

c) Commodity Exchange (CE) (as applicable)

No Commodity Exchange in place since deregulation in 2008

1.9 Non Tariff Barriers

a) Establish traders awareness of the EAC/COMESA NTB monitoring mechanism

Traders not fully aware of the EAC/COMESA NTB monitoring mechanism

b) If traders are aware find out the extent of using the designated reporting channels and whether their grievances have been addressed.

c) Obtain traders recommendations on how to enhance utilization of the NTB monitoring mechanism

APPENDIX D

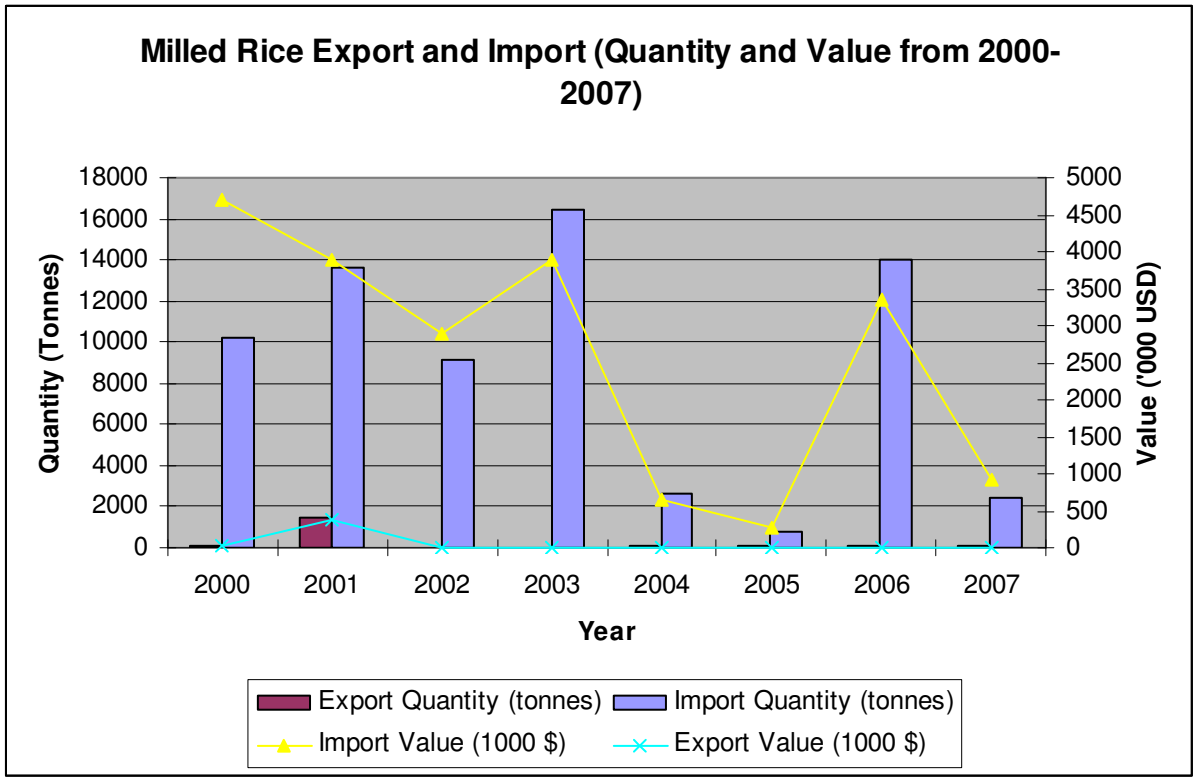
Zimbabwe's Farm Structure

FARM CLASS	LAND TENURE	FARM HOUSEHOLDS		AREA		
		NUMBERS	% OF TOTAL	HECTARES	% OF	AVERAGE FARM
SMALLHOLDER	COMMUNAL	1,100,000		16.4		15
	OLD RESETTLEMENT	72,000		3.7		51
	A1	141,656		5.7		40
	SUB-TOTAL	**1,313,656**	**98**	**25.8**	**75.6**	**20**
SMALL TO MEDIUM SCALE COMMERCIAL	OLD SSCF	8,000		1.4		175
	SMALL A2	14,072		1		71
	SUB-TOTAL	**22,072**	**1.6**	**2.4**	**7**	**109**
LARGE SCALE COMMERCIAL	MEDIUM-LARGE A2	1,500		0.9		600
	BLACK LSCF	1,440		0.9		625
	WHITE LSCF	1,377		1.2		871
	SUB-TOTAL	**4,317**	**0.3**	**3**	**9**	**695**
CORPORATE ESTATES	COMPANY	657		1		1,522
	CHURCH	64		0.04		641
	PARASTATAL	253		0.6		3,922
	SUB-TOTAL	**874**	**0.1**	**1.64**	**4.8**	**1,878**
TRANSITIONAL	UNALLOCATED			1.3	3.8	
TOTAL		**1,340,919**		**34,141.00**	**100**	

Source: Moyo and Yeros (2005)

APPENDIX E

Milled Rice Imports and Export (Quantity and Value from 2000-2007)



Source: FAO (2009)

APPENDIX F

Top Ten Grain Millers per Province

Harare Province

MILLER	CAPACITY (tons/hr)	Contact Person	Telephone Number	Physical Address
National Foods Lts	38	Mr. Nheta		
Blue Ribbon Foods	18	Mr. Bhobho	091 359 916	4 George Drive, Msasa, Harare
Maize for Africa	16	C. Chagweda	011 214 794	167 Chihombe Rd, Ruwa
Makonde Industries	15	Mr. Muvirimi	480600/446761	Cnr Gyroen Rd/Martin Drive, Msasa
Simboti Millers	14	E. Matewa	011 202 099	Lot No. 1 Off the Glen, Glen Forest, Domboshava Rd
Gwai Millers	12.4	C.Mutodza		6084 western triangle, highfields
Nelia Foods	11.8	M. Matimura	0912 936 424	
H and S Foods	10.7	H. Shumbamhiti	091 723 210	1252-3 Tynwald South, Industrial Area
Crown Choice Delight Millers	10	M. Mlambo	620768/620769	2 Upton Road, Ardbennie, harare
Phil OB Millers	9.5	A. P. Matunja	011 413 145	No. 23 Lobengula Ave, Southerton Industrial Area

Bulawayo Province

MILLER	CAPACITY (Tons/Hr)	Contact No.	Address
Basic Foods	27	09 - 484851/3	78 Silver Crescent Kelving West, Bulawayo
Rainbow Foods	33.1	091 278 842	15 Ironbidge Donningon, Bulawayo
Ilanga Foods	21.5	023 246 582	18 Market Road, Kelvin North, Bulawayo
National Foods Ltd	20	011 422 112	
Multifoods Milling Company	13.8	011 607 191	Farm 19 Holland, Bulawayo
Ragavin T/A Fatsita Foods	13	0912378307	CSC Old Complex, Bulawayo
Bulateke Milling	12	011 529 520	14640 Kelvin North, Bulawayo
Zim Milling Company	10.8	011 767 261	13926 Inotho Road, Kelving North Road, Bulawayo
Membar Milling	10	011 786 569	65 Mpumelelo Rd, Kelvin North, Bulawayo
Upwell Foods	9	091 2 741 629	CSC Old Complex, Bulawayo

Masvingo Province

MILLER'S NAME	CAPACITY (Tons/Hr)	Contact Person	Contact No.	Address
National Foods	5	Mr. Nheta		
Makondo Millers	4.8	J. Makondo	091 966 251	69 Chikombedzi G/P Chiredzi
ZPN Milling Company	4.8	Zivanai Shumba	0912787498	No. 15 Hawckley Road, Mvuma
Muushawasha Foods	4.5	Mr. Mapuranga	091 246 421	1310A Mineral Road, Masvingo
Big Six Millers	4.7	G. Taruvinga	014 - 433	Stand 72, Rutenga G/P Mwenezi
Rukanda Millers	3.1	N. L. Rukanda	037252/325	Stand 230 & 120, Chivi
Gomba Millers	3	B. Gomba	011 509 747	Stand No. 618, Nyika
Value Millers	3	S. Mashayahanya	011 614 134	Stand 1 Maregere B/C/ Masvingo
Marow Milling	2.9	A. Marowa	011 214 069	747 New Industrial Sites, Chiredzi
Mutema Millers	2.7	C. Mutema	0912570427	Stand No. 8, Ngundu B/C, Chivi
Sisonke T/A Sun Valley Milling	2.4	K. Tshuma	011 221 468	Stand 205, Chivi Industrial Site, Chivi Growth Point

Mashonaland West Province

MILLER'S NAME	CAPACITY (Tons/Hr)	Contact Person	Contact No.	Address
Makonde Milling Company	10.8	Mr. Gumbo	060 - 5614/5731	Alfa Farm Mhangura
Macsherp Milling Company	9	Mr. C. Mkunugwa	091 715 133	Std No. 264, Chimoi Rd, Kadoma
Tsetseka Milling Company	8	Mr. Mapfaka	011 896 959	Std No. 1162, Chegutu
Norton Millers	7.2	Chimuperu	04 - 210108	Knockmalloch Estates, Lot 3, Norton
Linden Park	6.9	Dr. Mazhindu	062 - 2424	Belyin Pvt Ltd, P. O. Box 62, Norton
Magaisa Milling Company	5.9	T. Mapfumo	068-7/2245	Stand No.132 Sanyati Growth Point
Falstand Investments	5.5	Wayne Linefield	011206539	232 Silo Rd, Banket
Zvionere Milling Company	5.4	Mr. E. Mtemi	091 651 516	Std 6083, njiri Street, Blockyard, Rimuka, Kadoma
Diamond Trading	5	S. Moyo	011 801 353	Magunje Growth Point Majunje
Blue Ribbon Foods	5	Mr. S. Bhobho	091 359 916	

Mashonaland East Province

MILLER'S NAME	CAPACITY (Tons/Hr)	Contact Person	Contact No.	Address
Good Hope Milling	8	Mr. Jaya	011 208 478	70 Houston Cross, Marondera
Tags	6.8	Mr. Muzonza	011531939 / 091347489	Stand no. 441 Murewa Industrial Area
Gatsi Millers	6.2	M. W. Gatsi	011 405 628	lot A James Farm, Goromonzi
Chinamora Milling	5.7	Chief Chinamora	011 875 548	Chabwino Farm, 38km Peg Along, Shamva Roda
Bromley Millers	4.9	T. Zimondi	011 862 638	Melfor Loop Road, Bromley
Badger Skins Milling Company	4.7	M. Chitauro	0912 218 975	Tabudirira Chipo Ward Mutoko Growth Point
Mutinhiri Millers	4.5	MP. Mutinhiri	011 582 112	Mahusekwa Growth Point, Mahusekwa, Marondera
Silver Dollar Milling	4.2		011 765 491	Stand 2778T Mzeki Way, Gombo, Marondera
Encore Milling Company	4.2	MP Matiza	011413969	Encore Safari Farm, Marondera
Avem Millers	4.2	A. Mushaninga	0912210048	Londus Business Centre

Matebeleland South Province

MILLER'S NAME	CAPACITY (Tons/Hr)	Contact Person	Contact No.	Address
Distinct Millers	7.5	T. Mushipe	091 882 037	Dulivadzimu Shopping Centre
Mangwana Milling	6	Mpini Moyo	091 730 471	119 industrial, Botswana Rd, Plumtree
Ndazi Ndazi Milling	5.4	L. Nleya	011 418 806	Dombodema Business Centre, Plumtree
Zimfoods	4.5	M. Chikova	011 409 861	Chamunanga Shopping Centre
Mudau Millers	3.9	R. Mudau	011 430 811	Channel 6 Business Centre
Staple Foods	3.6	M. Ndlovu	091 712 545	Sihlengeni Business Centre, Siphezini, Mat South
Sizabantu	3	D. Moyo	011 515 382	Stand No. 186 Maphisa Business Centre
Properways Enterprises	3	W. Ndlovu	011 211 125	Stand No. 422 Pioneer Rd, Victoria Falls
Bophelong Enterprises	3	M. Thabolo	076 1 254631	Shashe Business Center
Tshinane Millers	3	Mr. W. Sibanda	091 987 156	Lutumba Business Centre

Mashonaland Central

MILLER'S NAME	CAPACITY	Contact No.	Address

	(Tons/Hr)		
Adult Millers	9.6	011 422 380	Stand 2118, Light Industry, Bindura
Mapunga Foods (Haingate)	4.5	023 237 199	Insingizi Farm, Mapunga, Bindura
Ansellia Services	3.7	301810 / 334242	Oldbury Farm, 15km along Nw Mazoe Road
Afro Timber Milling	3.6	091 261 095	No. 13 GMB Rd, Glendale
Mburuma Milling	3	091 404 213	Stand No. 394/5, Shamva Urban, Shamva
Pfura Millers	3	-	Mt Darwin South Youth Agricultural, initiative Box 57, Mt Darwin
Double Design Foods	2.1	011 868 290	Summerset Farm Concession Near GMB Concession
Mudzonga Millers	2	091244152	Section 3/6, Trojan Mine, Bindura
Light Star Trading	1.8	0912848022	Stand No.2113 Light Industries, Atherstone, Bindura
White Harvest	1.2	091729058/ 091409151/ 023325333	Avoca Farm, Bindura

Matebeleland North Province

MILLER'S NAME	CAPACITY (Tons/Hr)	Contact Person	Contact No.	Address
Thendele Foods Milling Company	4.8	Mr. PH. Manyatela	011 777 082	Stand No. 36 Tsholotsho Business Centre
Maduke Milling Company	4.4	Mr. B. Ndlovu	011 435 743 / 0912 857 897	Inkunzi Business Centre, Tsholotsho District, Matabeleland North
Mavako Investments	3.9	Sipho Dube	011 762 420	Sazini Store, Lupane Business Centre
Nice Foods	3.6	Mr. M. Gumbo	011 702 325	Stand No. 205 Knwmour Business Centre, Lupane
Ammiwi Foods	3	A. Ndebele	011 792 970	Nkayi. Business Centre
PM Milling	3	Ndlovu Martin	091 851 604	Springrange Farm, Nyamandlovu, Mat North
Properways Enterprises T/A Sidobe Milling	3	Wilson Ndlovu	011 211 125 / 013 - 44489	St No. 422 Pioneer Rd, Victoria Falls, Industrial Site, Victoria Falls
Haice Milling	2.7	B. Nkomo		Inyathi Co-operative
Iluba Milling	2.7	Mr. A. Gabeza	0898-346/563	Stand No. 3 Sipepa Business Centre, Tsholotsho
Bio-Serve T/A Busu Milling	2.5	G. Gumede	011 217 390	Rennede Farm, 19km along Bulawayo Rd Victoria Falls

Midlands Province

MILLER	CAPACITY (Tons/Hr)	Contct Person	Contact No.	Address
National Foods	10.5	Mr. Nheta	-	-
Zvikuru Milling	8.4	S. Gomba	011 400 803	Burke Street, Kwekwe
Ilanga Millers	8	Manzanga P	091 218 600	Stand No. 1045 (17 Linconroad Industrial Sites, Gweru
Pentland Milling	7.6	O. M. Kwenda	054 - 224628	R. G. Mugabe Way, Market Street
Victoria Foods	12	John Kelly	054 - 22361-4	Stand No.771, Trafford Rd, Gweru
Kwayedza Milling	5.4	I. Tavengwa	011 614 251	Mfiri Business Centre
Blackman Milling	4.8	M. Matambanadzo	023 893 126	Stand no. 2008, Amaveni, Kwekwe
Star Bright Millers	4.8	Mollen Pedzisa	091 781 834	Stand No. 1319 - 1320 Mkoba 12, Gweru
Sugden Milling	4.8	C. Mukewa	011420213	Stand No. 2450/11 Mbizo, Kwekwe
Chikonde Foods	4	David Makinya	011 600 455	Stand No. 520 Mataga Growth Point, Mberengwa
Magonyo Millers	3.6	J. Magonyo	011 436 470	Stand No. 3005 Amaveni, Kwekwe

Manicaland Province

MILLER'S NAME	CAPACITY (Tons/Hr)	Contct Person	Contact No.	Address
National Foods Limited	13	Mr. Akim Makore	011 747 998	456 Glasgow Rd, Heavy Industrial Site, Mutare
Blue Ribbon Foods Limited	6	Mr. Kusema	020 - 62245	14 Newcastle Rd, Heavy Industrial Area, Mutare
Porusingazi Milling	4.8	Mrs Porusingazi	011 613 154	4 Glasgow Road, Mutare
Eckville Milling Company	-	Manhanhana	0912713518	Kadzunge Village, Headman Rukweza Nyazura
Panhinga Millers	2.7	A.Soma	011 799 935	Lot 14A Odzani, Mutare
Rich Millers	2.1	Mr. Chingoto	091 2 934 301	Stand 4455 Chikanga II, Business Centre Mutare
Commuk Milling	2	M. Chigombe	020 67138	Box 2299 Mutare
Crewsh Investments	-	Mr. Piyo	0912751786	12 Edson Sithole Rd, Paulington Murahwa Industrial Site
Hahlani Southview		L. Tsoka	025-3559	Stand No. 1038 Vengere, Rusape
Zuvaracho Mills	2	R.Dhliwayo	011 607 245	Mundanda Bsn Cntre, M Selinda , Tanganda Tea Estate
Mtunzi Milling	1.8	S. Mtunzi	011 614 671	Stand 581, Buzi Street, Gaza T/Ship, Chipinge

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