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DETERMINING THE FACTORS THAT LIMIT AGRO-PROCESSING DEVELOPMENT IN THE WHEAT MILLING AND BAKING INDUSTRIES IN RURAL AREAS IN SOUTH AFRICA

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National Agricultural Marketing Council
Strategic positioning of South African Agriculture in dynamic global markets

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NATIONAL AGRICULTURAL MARKETING COUNCIL

DETERMINING THE FACTORS THAT LIMIT AGRO-PROCESSING DEVELOPMENT IN THE WHEAT MILLING AND BAKING INDUSTRIES IN RURAL AREAS IN SOUTH AFRICA

NAMC Report

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EXECUTIVE SUMMARY

The main purpose of the study was to identify factors that restrict development in the wheat milling and baking industry in rural areas of South Africa. In order to conduct a study that adds value to stake-holders within these industries, various objectives were identified. These objectives served as guidelines in identifying factors that restrict development in these industries. An effort was made to as far as possible; discuss these objectives and the results obtained from the study. The objectives of the study therefore can be summarised as follows:

1. Report on previous studies conducted in South Africa on the wheat milling and agro-processing industry.
2. Analyse the wheat supply chain to understand the shorter and longer term issues in the sub-sector that influence the effective establishment of agro-processing industries in rural areas.
3. To unpack the governance/business models of successful smaller mills; looking specifically at contractual arrangements, hedging, infrastructure, and marketing strategies.
4. Identify the critical success factors of the current wheat millers.
5. Analyse the barriers to entry and barriers to exit.
6. Determine the impact of imports and exports of raw materials as well as the manufactured products.
7. Determine the impact of input price volatility on the profit margins of the smaller commercial mills
8. Identify the use of any risk mitigation strategies such as hedging, storage and branding applied by the smaller commercial mills.
9. Identify factors that restrict and/or enhance the competitiveness and profitability of smaller commercial mills.
10. Analyse whether the current support measures provided by **the DTI** are applicable to the agro-processing sector and to make recommendations on how such support measures can be adapted if needed.
11. Establish protocols within support structures that can assist in the development and sustainability of agro-processing industries in rural areas.
12. Make recommendations on key issues identified in the study.

From the outset of the study it was eminent that finding wheat millers and bakers who were willing to take part in the study and if they could provide the study with accurate data would be difficult and of concern. Originally, the study was bound to the geographical areas of the North West and Free State provinces. However, due to the investigation by the Competition Commission and the industries unwillingness to share information, the study was forced to go beyond these boundaries. The problem of information sharing within these industries was also of a concern for the Department of Health. In a study by the Department of Health (2007), where it was mentioned that finding small millers was difficult as the small scale millers did not want to be found, and

did not want to talk to strangers towards whom they showed a level of distrust. After all of this, it is important to note that in total 15 wheat millers and bakers were found that were willing to be interviewed and would provide information relevant to the study.. Geographically, the millers and bakers interviewed are situated in Western Cape, Eastern Cape, Pretoria, North West and Free State. Out of the total interviews conducted, 10 were wheat millers and the remaining five were bakers. As far as possible, the study captured the voice of small, medium and large scale wheat millers and bakers.

1. Report on previous studies conducted on the wheat milling and agro-processing industry (pages 8 – 26).

One of the first objectives of the study was to report on previous studies conducted on the wheat milling and agro-processing industry. The main purpose of a literature review is to provide a foundation on which the study can be conducted. It also ensures that the proposed study expands on the existing body of knowledge within the wheat industry. The literature review section was divided into an International, Southern African Development Community (SADC) and South African section. For abbreviation purposes, the literature review conducted on South Africa formed an essential basis from which the study was conducted as it directly affected the environment in which the study was conducted.

In the South African literature review section it is worth noting the studies by the Food Pricing Monitoring Committee (FPMC) (2003) and the Industrial Development Corporation (IDC) (2010). The FPMC (2003) study analysed the wheat-to-bread value chain, while also indicating the level of concentration within the wheat milling and baking industries. The wheat-to-bread value chain as well as the level of concentration particularly played an important role in the objectives of the study in identifying factors that restricts development.

The IDC (2010) study main purposes was to provide a strategic overview of the grain milling industry in South Africa, while also indicating some of the main features and key performance trends. The study more importantly identified certain investment opportunities for the benefit of existing as well as emerging millers. Barriers to growth, key challenges facing the milling industry, a SWOT analysis as well as the market structure was analysed and identified by the IDC (2010) study. The IDC (2010) study concluded that the greatest challenge facing South Africa is the attainment of food security. This is underpinned by high population growth, high levels of poverty, logistics costs and heavy reliance on a few staple foods. The demand for wheat as a staple food is likely to be sustained for many decades to come. The milling industry will always play a vital role in addressing food security problems, provided that issues such as transportation and power supply are addressed and that the industry's competitiveness is maintained or enhanced.

After a thorough and detailed review of the available literature review, a conclusion was made that the study needed to identify factors that restrict development in the wheat milling and baking industries which will expand on the existing body of knowledge and that the study will make a valuable contribution to all stake-holders involved within the industries.

A detailed market overview followed the literature review section. The main purpose of the market overview section was to identify current trends as far as stock levels, production levels, consumption levels and international trade are concerned. The market overview section was divided into a global, SADC and South African scale. For the purposes of the executive summary, only the South African wheat overview will be summarised as this is the environment in which the study was conducted.

The total hectares of wheat production decreased from the 2008/2009 to 2009/2010* production season, this is a decrease of 14 percent. The two main production regions in South Africa are the Western Cape and Free State provinces, representing 47 percent and 36 percent of the total hectares planted in South Africa respectively. Total production in South Africa therefore decreased by 10 percent from 2008/2009 to 2009/2010* production period.

As far as consumption levels in South Africa was concerned. Consumption is divided into human consumption, feed consumption and wheat that is used as seeds for plantings. Consumption of wheat stayed stable over the past two years as the local economy recovered from the world-wide recession. As far as imports and exports are were concerned, South Africa is a net importer of wheat. The reason for this is that the South African wheat prices are trading at import parity levels, making it more economical to import wheat products than to procure from within the South African borders. The only solution for this is to increase import tariffs. This would shift the import parity level upwards, protecting local production against imports.

2. An analysis of the wheat supply chain (pages 72 – 77)

The South African wheat supply chain was also analysed in the South African market overview. A detailed analysis of the wheat supply chain was one of the objectives of the study. An analysis of the wheat supply chain will aid in understanding the long and short term issues in the sub-sectors of the industries. The figure below represents the wheat supply chain in South Africa.

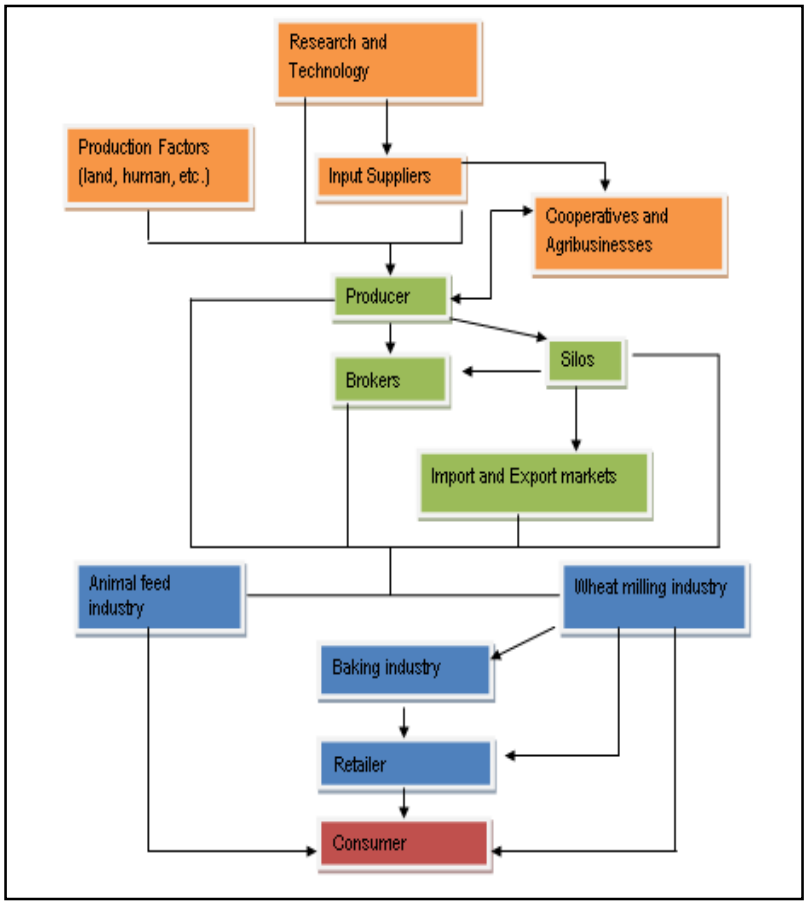


Figure: The South African wheat supply chain

Source: NAMC, 2009

From the figure above, the process of adding value in the wheat industry is clear and obvious. However, one of the issues identified by the study that restricts development lies in the research and development linkage. In order for an industry to grow and expand, investment must be made in research and development. However, at present research within the industry is laborious and difficult following the industry's unwillingness in sharing information. All parties and stake-holders must be willing to share information available without them having to fear prosecution.

3. Identify business models of the future (pages 92 – 98)

One of the objectives of the study was also to identify business models of the future, which current wheat millers and bakers must follow in order to be successful. The wheat milling industry and all stake-holders need to be able to engage successfully in the rapidly changing current and future business and market environment. Management of wheat millers and bakers should focus on customers, value propositions and resources &

capabilities. The development of business models for the future should focus on the customer with the environment and sustainability as the core for decision-making and strategy, according to the IIED (2009).

Agriculture and agribusinesses today faces huge challenges. Cooperation and co-creation of new knowledge markets is essential in the debates concerning the future of agribusiness, agriculture and the environment. Most issues require involvement not only from the business community and knowledge institutions, but also different levels of government and a diverse set of societal organizations. The business model of the future therefore, will have to pragmatic and focus on sustainability, climate change, emerging farmers and markets, technology, systemic risks and the balance of power. Wheat farmers, wheat millers and the industry as a whole can develop an acceptable business model to focus not only on the current market environment but also to create value to customers in the future.

After a detailed overview of the current wheat markets and business models of the future, the results of the study were presented. As mentioned earlier, in total 15 wheat millers and bakers were interviewed of which 10 were wheat millers and five were bakers. An effort was made to, as far as possible, capture the voice and opinions of small, medium and large scale wheat millers and bakers. The average wheat miller interviewed has less than ten years of experience, mills on a small scale and has a total capital investment in machineries, buildings and vehicles of between R1 million and R2 million. On the other hand, the average baker interviewed falls between two brackets, the first one being less than 10 years and the second bracket between 11 and 20 years of experience and bakes on small scale. For the purposes of the study, this average miller and baker will give valuable insight into the objective of the study to identify factors that limit development in the milling and baking industries.

4. Identify the critical success factors of the current wheat millers and bakers (pages 116 – 119).

By identifying the critical success factors of current wheat millers and bakers, valuable insight was obtained on what an emerging wheat miller and baker must do in order to be as successful as possible. From the outset of the study, emphasis was placed on these factors as it would make a valuable contribution to the objectives of the study. The critical areas of the business represent the areas of the business that must be effectively managed in order to secure the successfulness of the wheat milling or baking business.

One of the most crucial areas of a wheat milling and baking business is to identify an end market / consumer. Respondents indicated that before one can start operations, questions on who the final consumer will be, in what geographical area the product be sold, what distribution channel would be used etc. need to be answered. Identifying the target market was the first crucial step in setting up the business for success. Cash

flow management was also indicated as a serious area of a business. The overall success of the business was dependant on the effective management of cash flow as procurement is mainly done on a cash basis and slow payments also becomes a problem. In order to be successful, wheat millers and baker also indicated that knowledge and experience on a management level is essential. Knowledge and experience refers to overall management of the business and the techniques of milling and baking.

Other areas of the business that are crucial to the overall success of the business included, an effective cost management strategy, procurement management, obtaining and managing the necessary capital, high quality service delivery, management of labour, applying the correct wheat gristing techniques and a well directed marketing campaign.

5. Analyse the barriers to entry and exit (pages 122 – 125)

After a detailed discussion on the critical areas of current wheat millers and bakers, identifying the barriers to entry and barriers to exit of the industries followed. This objective of the study formed the cornerstone of the study as it gave more detail on factors that restricts development in the wheat milling and baking industries. The wheat milling and baking industries is described as industries with relatively high barriers to entry. This statement is supported by the fact that a low number of new wheat millers and bakers have entered the industries in recent times (National Chamber of Milling, 2010). The study made an effort to identify these barriers to enter and exit.

The first barrier identified lies in obtaining the necessary capital requirements to start up operations. Milling wheat requires significantly more capital investment than milling maize. Capital requirements therefore have an even larger impact on the wheat milling industry than the maize milling industry. Establishing a market was also indicated as a potential barrier to entry. A prospective wheat miller and baker must exploit a new market opportunity or product development as the wheat milling and baking is a competitive environment with dominating large scale millers and bakers. However, wheat millers and bakers indicated that there is space in the rural areas to increase the wheat milling and baking capacity.

Other barriers to entry that wheat millers and bakers identified include the knowledge of the wheat milling and baking industries, business skills (business knowledge on logistics), well maintained infrastructure, marketing management knowledge, the necessary cash flow, the location of the business and obtaining a highly skilled labour force. On the notion of obtaining a skilled labour force the National Chamber of Milling expressed their disappointment on the level to which government training authorities was involved in the facilitating and

training in the food and beverage manufacturing sector. They are of the opinion that much more needs to be done (National Chamber of Milling, 2010).

In terms of barriers to exit, all the respondents indicated that the only barrier to exit that exists in the wheat milling and baking industry is the ability to sell the machinery at a price that is acceptable for the owner of the machinery. If the wheat mill owner or bakery wants to stop operations, a willing buyer of the assets is required. This is sometimes a difficult task in that new market entrants are hard to come by. The industry does not have willing new market entrants that want to start milling and baking operations. It is therefore perceived that finding a suitable buyer for your assets is a tedious task and could potential restrict the wheat miller or baker from exiting the market.

6. Determine the impact of imports and exports of raw materials as well as the manufactured products (pages 128 – 129).

Imports and exports of raw materials as well as manufactured products have an impact on the wheat milling and baking industry, especially imports of raw materials. One of the objectives of the study was to determine the severity of the impact and to report thereon.

From the outset of the study, respondents indicated that imports of raw materials have an impact on the industries. This impact of imports on their business was indicated as indirect, as they feel that they are more exposed to imports of wheat products from international competitors. The biggest reason given for this impact came in the form of imports of wheat grain. Some of the respondents indicated that they feel the imports of wheat impacts on their business in a negative way as the imported wheat did not meet acceptable baking quality and standards. Local wheat production therefore must be supported and protected by either increasing the import tariff or supporting local production of wheat through grants.

Exports also have an impact on the industry. Out of all the respondents, 17 percent indicated that this impact on their business is very low. They indicated that they would export their final products should the opportunity present itself but emphasised that exporting was not their core business. They would rather concentrate on local markets and expand where possible.

From the above it is notable that imports and exports play a very small role in the daily operations of the smaller wheat milling and baking industries. Therefore local production of wheat must be supported and enhanced to minimise the imports of wheat grain.

7. **Determine the impact of input price volatility on the profit margins of the smaller commercial mills (page 125 – 127) and**
8. **The use of risk mitigating strategies by smaller scale wheat millers and baker (pages 125 – 127)**

One of the most important raw materials a wheat miller buys is wheat grain and in the case of the baker, the procurement of flour. Wheat price volatility therefore can have a big impact on the profitability of the wheat mill business. The same is the case for bakers; flour price volatility will impact on the profitability of the baking business. Out of all the respondents, 40 percent indicated that the impact of input price volatility of raw materials on the profitability of their business is very high, 40 percent indicated that this impact is medium and the remaining 20 percent indicated that the impact is low. The majority of the respondents who indicated that the impact is very high are small scale wheat millers and bakers. These small scale wheat millers and bakers felt exposed to input price volatility as they do not have the cash flow and the knowledge to counteract these input price risks by using risk mitigating strategies such as SAFEX. On the contrary, large scale millers indicated that they do make use of SAFEX as part of a risk mitigating strategy. This ability of large scale wheat millers to mitigate risk on SAFEX creates an advantage for large scale millers over smaller scale millers in their ability to offset the input price volatility.

The study identified that smaller scale wheat millers and bakers do no make use of any risk mitigating strategies to off-set the risk of input cost price volatility. Smaller scale wheat millers and bakers do not have the necessary skills and cash flow to make use of these strategies. Out of all the respondents only 30 percent indicated that they do make use of contracts. It must be noted that these respondents were mainly large scale wheat millers and bakers. Indicating the advantage large scale wheat millers and bakers has over their smaller scale counter parts.

9. **To identify factors that restricts and/or enhances competitiveness and profitability of smaller commercial mills and bakers (pages 105 – 107 & 108 – 116 & 119 – 122).**

In identifying factors that restricts and/or enhances competitiveness and profitability of smaller scale millers and bakers, an effort was made to identify the level of competition that exists between wheat millers and bakers. . By identifying the level of competition within these industries, factors that restrict and/or enhance competitiveness and profitability can be identified. Two main sections of the study were setup to identify the factors that restrict and/or enhance profitability in the wheat milling and baking industries. These sections include the section on issues/constraints/challenges and a SWOT analysis. The issues/constraints/challenges as well as the weaknesses and threats of the SWOT analysis section clearly indicates the factors that restrict competitiveness and profitability in the wheat milling and baking industries, where as the strength and

weakness section of the SWOT analysis indicate the factors that enhance the competitiveness and profitability.

The opinions expressed by wheat millers and bakers on the level of competition within the wheat milling and baking industry showed that the milling and baking industry is highly competitive. Out of all the respondents, 60 percent indicated that the industry is highly competitive, with the remaining 40 percent indicating that the level of competition is on average the same as any other industry. Not one respondent indicated that the level of competition is low or non-existing. Some of the respondents feel that the level of competition is too high, forcing them out of the market. However, a large portion of respondents indicated that there is still capacity in the country to increase wheat milling and baking on a small scale. What the study did find is that much more needs to be done to protect the smaller scale wheat millers and bakers against the large scale millers and bakers as they have the capital and cash flow requirements to distort the markets and increase the level of competition in the market.

The issues/constraints/challenges section provided valuable insight into possible factors that restrict competitiveness and profitability of small scale millers and bakers. The respondents indicated the issue of collusion taking place in the wheat milling and baking industry. The level of collusion is currently under investigation by the Competition Commission. The respondents agreed that there was a level of price fixing between firms. The knowledge level of labourers was also indicated as a serious challenge for the industry as finding reliable and motivated labourers is troublesome, especially in the rural areas. Other issues or challenges include theft, the availability of wheat, high electricity supply and costs, credit availability from commercial banks, the lack of support from **the Dti**, deteriorating infrastructure and the level of wheat and flour imports. All these factors restrict competition and profitability in the wheat milling and baking industries as unnecessary costs are incurred impacting on the profitability of wheat millers and bakers which leads to a decrease in the level of competition.

As mentioned before, the weaknesses and threats section of the SWOT analysis also identified some factors that restrict competitiveness and profitability of wheat millers and bakers. The weaknesses from the SWOT analysis include the ability to obtain the necessary credit, the development of a marketing campaign, handling of bad debts, procurement and logistical management, keeping overheads as low as possible, increasing the milling and baking capacities and the low level of product differentiation possibilities. In the threats section, respondents indicated that ever increasing input cost is a danger. Other threats included the unhealthy level of competition, high levels of imported wheat and the amount of theft taking place. Again, all of these factors restrict competition and profitability in the wheat milling and baking industries as unnecessary costs are

incurred impacting the profitability of wheat millers and bakers which leads to a decrease in the level of competition.

Factors that enhance profitability and competition in the wheat milling and baking industry were captured in the strengths and opportunities sections. High quality product offering, high quality level of service offering, good management and expertise, the location of the business, high levels of integration and low barriers to entry are all factors that enhances profitability and competition within the industries. The respondents also indicated some opportunities that are present in the industries. These opportunities include increasing the level of integration, milling wheat in rural areas, milling other types of grain and increasing the milling capacities. All of these factors contribute to enhancing the level of profitability, and therefore competition can increase.

10. Analyse whether the current support measures provided by the DTI are applicable to the agro-processing sector and to make recommendations on how such support measures can be adapted if needed (page 138).

The Department of Trade and Industry (**the Dti**) launched a new incentive programme, called the Manufacturing Investment Programme (MIP) which commenced in 2008 and will end in 2014. The objectives of the MIP are to stimulate much needed investment within the manufacturing industry, while all the while aiming to enhance the sustainability of manufacturing investment projects by small enterprises and to support large-to-medium scale projects in manufacturing that would not have been established without a grant. To qualify for the MIP, projects are assessed to determine their importance to **the Dti**'s priority sectors, job creation, Broad Based Black Economic Empowerment (BBBEE) as well as location in areas of high unemployment. This programme should aid wheat millers with their investment costs. However, the waiting periods to qualify for these grants are a serious issue and needs addressing. The Department of Health (2007), stated that "…has taken nearly four years to get approval for an allocation of funds…". The views and opinions expressed by respondents also indicated that the waiting period for the funds to be allocated can take several years. This process must be speedier, as the industry especially smaller scale wheat millers and bakers are in desperate need of funds. Furthermore, commercial banks were also required to make a contribution through advancing credit. Non – creditworthy clients therefore do not qualify for Dti assistance.

11. Additional areas covered by the study (pages 132 – 140 & 142 – 144)

The study went beyond the scope of objectives and covered additional aspects that can assist in identifying factors that restricts development in the wheat milling and baking industries. An effort was made to identify risks on a macro and micro level. Macro level risks are those uncertainties over which the wheat milling and

baking industry has no control, whereas the micro level risks are uncertainties that impact on the daily operations of wheat millers and bakers. An additional area covered by the study was to identify all legal aspects that have an impact on the industries. A legal framework was therefore established for the industries by the study. An analysis was lastly made on the financial performance of wheat millers and bakers over the past five years. These additional areas added value to the objectives in identifying factors that limit development in the wheat milling and baking industries.

For the purposes of the executive summary only the most important micro-level risks as identified by wheat millers and bakers will be mentioned as this will shed some light on the risks they feel impact their daily operations. The act of theft taking place on-site was mentioned on a continuous basis as the biggest risk they face on a daily basis. Other risks include, power outages and the electricity price increases, the quality of the surrounding infrastructure and logistics, default on debt as these industries do business on a cash basis, the impact of price volatility on their profits and the level of staff skills. The possibility that these risks will occur is high, with the impact on the industries also indicated as high. Attention therefore, must be given to these risks and the proper risk mitigating strategies must be developed.

As mentioned above, a legal framework for the wheat milling and baking industries was developed. The most important legal aspect impacting the wheat milling and baking industry is the fortification and labelling of foodstuffs law. This act provides guidelines and principles on the correct procedure and standards, in terms of the fortification and labelling process of foodstuffs that must be executed by millers in South Africa. The issue with this act is that small wheat millers feel that the barrier to entry of the industry is increased as entrants will incur a great amount of unnecessary costs. This act is supported by the National Chamber of Milling, which in the past mostly represented the large scale millers of South Africa. This created an advantage for large scale millers over small scale millers. This has change over the past few years. At present the National Chamber of Milling has more small scale millers and bakers on their membership list than large scale wheat millers and bakers (National Chamber of Milling, 2010).

An effort was lastly made by the study to analyse the financial performance of existing wheat millers and bakers. This will indicate how the various businesses have performed in terms of turnover over the past five years. Respondents were asked to indicate from a scale of very good, good, average, bad and very bad how their turnover performed over the past five years. More or less 34 percent of respondents indicated that their financial performance over the past five years was average. Out of all the respondents, another 33 percent indicated that their respective turnover over the past five years performed above average. The last bracket of wheat millers and bakers were represented by 33 percent of respondents. This bracket of wheat millers and bakers indicated that their turnover over the past five years performed below average and that they have

experienced a drop in sales over the past few years. It is however, interesting to note that the below average performance bracket was solely represented by small scale wheat millers. This indicates that the financial performance of large scale wheat millers and bakers are superior to smaller scale wheat millers and bakers. Smaller scale wheat millers and bakers therefore need more support from **the Dti** and government institutions which would aid in the sustainability of smaller scale wheat millers and bakers.

12. Make recommendations on key issues identified by the study (pages 145 – 149)

From the outset of the study it was clear that conducting research within the wheat milling and baking industries will be difficult. Information sharing and finding wheat millers and bakers that are willing to provide information and views were difficult following the investigations by the Competition Commission. It is important to note that this problem of information sharing was also a problem before the investigations by the Competition Commission. This clearly indicated that information sharing and data collection within the wheat milling and baking industries is a major problem and needs to be addressed. Trust between the stakeholders within the supply chain seemed to be a major obstacle. Research and development is the cornerstone of further expansion and growth in any industry and greater effort must be made to create an environment where there is trust to access information..

A factor that clearly restricts development is the lack of government support in terms of the quality of infrastructure and the grants that government provide. Many respondents expressed their concern over the quality of infrastructure their business has to cope with. For many small scale wheat millers, service delivery is the cornerstone of their business. Not having access to a properly maintained surrounding infrastructure incurs unnecessary costs, decreasing the profitability of smaller scale wheat millers and bakers. For smaller scale wheat millers and bakers, sustainability equals profitability. Government therefore should upgrade enabling infrastructure, especially in rural areas.

Government grants was another specifically mentioned issue that wheat millers and bakers feel hampers their prospect to expand. Expansion and starting operations requires capital. Many small scale wheat millers and bakers expressed their concern over the time it takes to qualify for the much needed grants. It can take several years before funds are made available. Small scale wheat millers and bakers do not have that time available. The process and the conditions of making funds available should be addressed.

Theft on-site was a major issue for the respondents - a solution should be found for this. Wheat millers and bakers spend unnecessary productive time and effort on theft prevention. Default on debt is another serious risk that impacts specifically on smaller scale wheat millers and bakers. The wheat milling and baking industry

is cash flow driven, with sales being done on a cash basis. Another problem, especially in rural areas, is the lack of motivated and skilled labourers. More programmes should be initiated that provide labourers with the necessary skills to excel in the industry. There are however, skills development programmes, smaller scale wheat millers and baker must be more exposed to these programmes. The National Chamber of Milling, as mentioned, expressed their disappointment on the level to which government training authorities were involved (National Chamber of Milling, 2010). A strategy needs be formulated to counter-act these risks as it will save costs incurred by smaller scale wheat millers and bakers.

The biggest difference that exists between smaller scale wheat millers and bakers and their larger scale counterparts is that large scale millers' and bakers' have the ability to handle price volatility with the correct risk mitigating strategies. Smaller scale millers and bakers do not have the necessary skills and capital to make use of SAFEX in a risk mitigating strategy. Therefore, price volatility has a greater impact on the smaller scale wheat millers and bakers than on their larger scale counterparts.

The study was complicated by the fact that finding small scale wheat millers that are still in business and that mill wheat on a daily basis was difficult. This in itself restricts agro-processing development as wheat mill owners are not supported by any institution and little information is available. According to SAGIS, any business that stores grain at silos and adds value to grain products must registered at SAGIS. A recommendation is that small scale wheat millers and bakers must register at organisations such as the National Chamber of Milling and the South African Chamber of Baking. Having said this, smaller scale wheat millers and bakers are sometimes not interested in registering with these organisations as they perceive the fees to be high and also that it is of little value to them. After some investigation it was found that fees for small scale members was R80 membership fee per month which is low (National Chamber of Milling, 2010).

The conclusion is that large scale wheat millers and bakers have an edge over their smaller scale counterparts in that they have the necessary skills, knowledge and cash flow to overcome obstacles in a short period of time whereas smaller scale wheat millers and bakers can take several months to recuperate proving sometimes to be detrimental. The factors identified by the study that restricts development must be resolved in order for smaller scale wheat millers and bakers to have a fighting chance.

CHAPTER 1 STUDY OBJECTIVES, DATA COLLECTIONS AND METHODOLOGIES

The main purpose of the study is to analyse and identified the factors that limits agro-processing development in the wheat milling and baking industries in rural areas. In order to conduct a proper study that identifies the factors that restricts agro-processing development, a detailed analysis of the wheat milling and baking industries is required, emphasising the smaller millers and bakers. The study is broadly divided into five chapters. The first chapter introduces the reader to the objectives of the study, the method used in data collection and the associated methodologies used in the study. Chapter 2 lays a foundation from where the study can be performed by reviewing all previous studies conducted on the wheat industry, the wheat milling industry and the baking industry. Chapter 3 provides a detailed overview of the International, Southern African Development Community (SADC) and South African wheat industry. The data analysis and results of the study is analysed and interpreted in chapter 4, which leads to the conclusions and recommendations of the study that is discussed in chapter 5.

In order to conduct a precise and focused study for the industry, a clear understanding of the associated methodologies used in this study must be understood. Chapter 1 aims to introduce the reader to all the objectives of the study and the geographical region within which the study is conducted.

1.1 STUDY OBJECTIVES

The objectives of the study can be summarised as follow:

- Report on previous studies conducted in South Africa on the wheat milling and agro-processing industry
- Identify the critical success factors of the current wheat millers
- Analyse the wheat supply chain to understand the shorter and longer term issues in the sub-sector that influence the effective establishment of agro-processing industries in rural areas.
- Determine the impact of input price volatility on the profit margins of the smaller commercial mills
- Identify factors that restrict and/or enhance the competitiveness and profitability of smaller commercial mills.
- Identify the use of any risk mitigation strategies such as hedging, storage and branding applied by the smaller commercial mills.
- Establish protocols within support structures that can assist in the development and sustainability of agro-processing industries in rural areas.
- To unpack the governance/business models of successful smaller mills; looking specifically at contractual arrangements, hedging, infrastructure, and marketing strategies.
- Analyse the barriers to entry and barriers to exit.

- Analyse the power relations between the players, if any, with special emphasis on smaller commercial mills and bakeries.
- Determine the impact of imports and exports of raw materials as well as the manufactured products.
- Analyse whether the current support measures provided by **the Dti** are applicable to the agro-processing sector and to make recommendations on how such support measures can be adapted if needed.
- Make recommendations on key issues identified in the study.

1.2 DATA COLLECTION

The collection of information was done by conducting interviews with a structured questionnaire with various wheat milling and baking firms in the supply chain as well as major role players. The structured questionnaires were developed on a statistical basis, in order to verify the results obtained by the study statistically.

From the outset of the study, it was apparent that data collection will be extremely difficult following the investigation of the Competition Commission into the wheat milling and baking industries. The original geographical region of the study was the North West and Free State provinces. However, the study could not find sufficient wheat millers and bakers in the original geographical areas that were willing to share information, following the investigation of the Competition Commission. The study therefore was forced to go beyond the original boundaries to neighbouring provinces and an effort was made to find wheat millers and bakers that are willing to cooperate and would provide accurate data. The National Agricultural Marketing Council agreed to these changes to the original proposal.

To support the unwillingness of the industry to share data and information, the following is an exact extrapolation from the National Chamber of Milling's website under the industry statistics. "*Following the Competition Commission concerns regarding information sharing, the chamber has discontinued with the dissemination and distribution of industry statistics until such time when the commission has given clear guidelines regarding information sharing on an industry basis"* - National Chamber of Milling (2010-07-12). In a study by the Department of Health (2007), an observation was also made to the fact that finding small millers was difficult as the small scale millers did not want to be found, and did not want to talk to strangers towards whom they showed a level of distrust.

In total 15 wheat millers and bakers were interviewed. Geographically, the millers and bakers interviewed are situated in Western Cape, Eastern Cape, Pretoria, North West and Free State. Out of the total interviews

conducted, 10 were wheat millers and the remaining five were bakers. As far as possible, the study captured the voice of small, medium and large scale wheat millers and bakers.

1.3 METHODOLOGIES USED BY THE STUDY

1.3.1 STRUCTURE, CONDUCT AND PERFORMANCE FRAMEWORK

Bain (1951) founded the traditional S-C-P analysis framework in industrial organisation theory in 1951 (CAET, 2003) to account for inter-industry differences in profitability. S-C-P is an analytical framework used to study how the structure of the market and the behaviour of the sellers of different commodities and services affect the performance of markets and consequently the welfare of the different participants (USAID, 2006). Structure affects conduct, which in turn affects performance. The structures considered in S-C-P are as follows (USAID, 2006):

Structure refers to the features of the market that influence the rivalry among buyers and sellers operating in a market. Examples include the number of buyers and sellers in the market, barriers to entry to the market, the composition of the market, level of infrastructure etc.

Conduct refers to patterns of behaviour that market participants adopt to affect or adjust to the markets in which they buy or sell. This includes price setting behaviour and production and marketing practices.

Performance refers to market outcomes and how the market fulfils certain social and private objectives. It encompasses price levels and stability, profit levels, costs, efficiency as well as quantities and quality of food sold.

An illustration of the S-C-P paradigm is given in Figure 1 below (Aleksandrova & Lubys, 2004). Given the linkages of the S-C-P framework, questionnaires were developed to focus on the different elements and separate questions were formulated to address the structure, conduct and performance within the supply chain. The market structure is the most basic concept and research motive and it reflects groundwork and environment in a market economy (CAET, 2003).

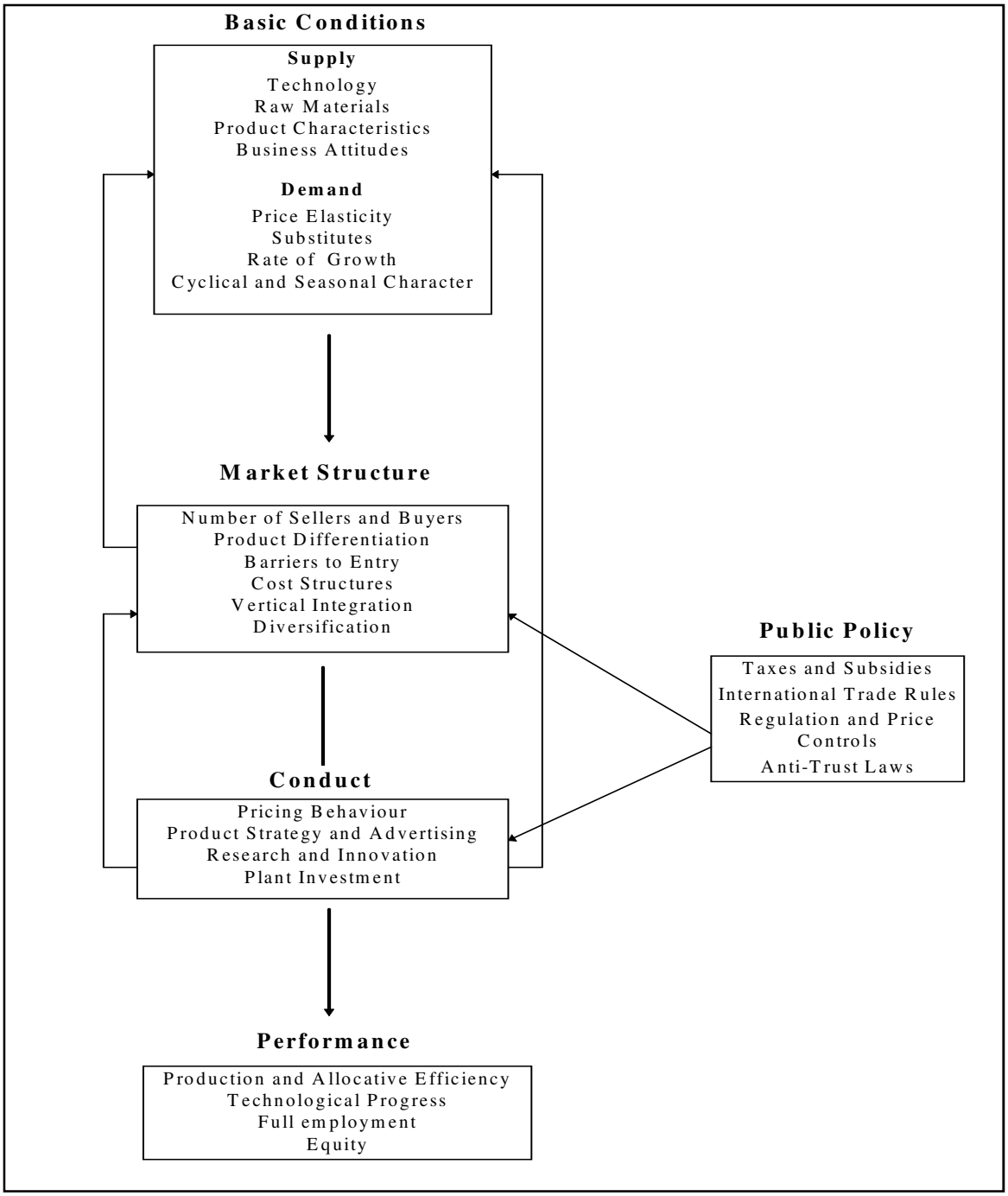


Figure 1: An illustration of the S-C-P paradigm
Source*:* Aleksandrova & Lubys, 2004

CAET (2003) distinguishes between two different types of S-C-P frameworks. This can be seen in Figure 2 and Figure 3 below and indicates that it can either be a deterministic model or a dynamic model. The flow of the arrows indicates the effect the structure, conduct and performance have on each other and how these factors influence the market.

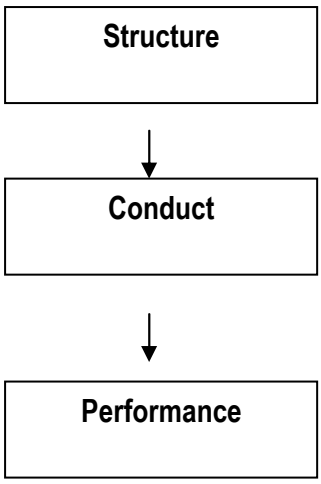


Figure 2: Deterministic S-C-P mode
Source*:* Lutz in CAET, 2003

Figure 2 indicates how the flow is only one-way, whereas Figure 3 shows the dynamic nature of the S-C-P model because of its interrelationships.

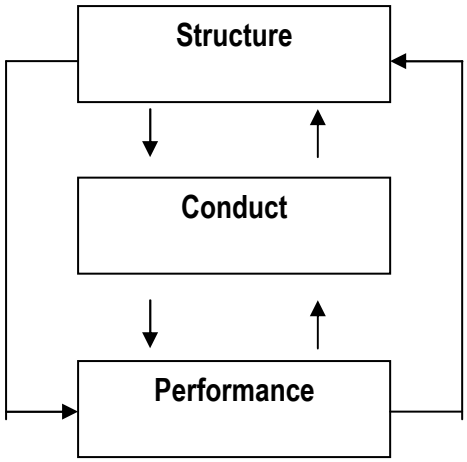


Figure 3: Dynamic S-C-P model
Source: Lutz in CAET, 2003

The S-C-P paradigm was used to analyse the various role players in the market and how these different elements feature in the wheat milling industry.

1.3.2 PRICE VOLATILITY

Volatility provides a measure of the possible variation or movement in a particular economic variable. It provides a measure that describes the tendency of a commodity, for example the maize market, to move either up or down and to what extent the anticipated move could be. In essence it is a fear factor. If the price

jumps large amounts in a short space of time then the volatility of the market will be high. If the market movement is small, steady and predictable then the volatility will be low. Lack of predictability and uncertainty associated with increased volatility may influence both producers and consumers. High volatility may limit the ability of consumers (processors) to secure supplies and control input costs.

Two measures of volatility are used (European Commission, 2009):

- Historical (realised) volatility, based on observed (realised) movements of price over an historical period. Historical volatility tells us how volatile an asset has been in the past. It represents past price movements and reflects the resolution of supply and demand factors.
- Implicit volatility. Implicit volatility is the markets' view on how volatile an asset will be in the future. It represents the market's expectation of how much the price of a commodity is likely to move and tends to be more responsive to current market conditions.

Historical volatility is a statistical measure of the volatility of a futures contract, security, or other instrument over a specified number of past trading days. It is an indication of past volatility in the marketplace. Historical volatility is calculated as the annualized standard deviation of the first difference in the logarithmic values of nearby futures settlement prices. Mathematically,

$$Volatility = STDEV_{Day1}^{DayN}\left(LN\frac{SettlePx\ T}{SettlePx\ T-1}\right)*\sqrt{252}$$

The historical volatility of near month wheat contracts traded on both the Chicago Mercantile Exchange and the Agricultural Products Division of the JSE Ltd (SAFEX) were calculated and are discussed in detail in Chapter 3.

1.3.3 RISK MANAGEMENT ANALYSIS

Risk management for the purposes of this study will be divided into a macro and micro level. All identified risks which have an external impact on the daily operations of the milling Industry will be classified as Macro Risks. Macro Risks will further be divided into a Political, Economical, Social, Technological and Environmental risks (Louw, 2007). Micro risks, will have an internal impact on the milling industry in that these types of risks are unique to and affect the long term sustainability of the industry. Micro risks, therefore will be divided into Operational, Product Market, Financial, Input and Export risks. The following figure provides a clear understanding of the whole risk management process for the proposed study.

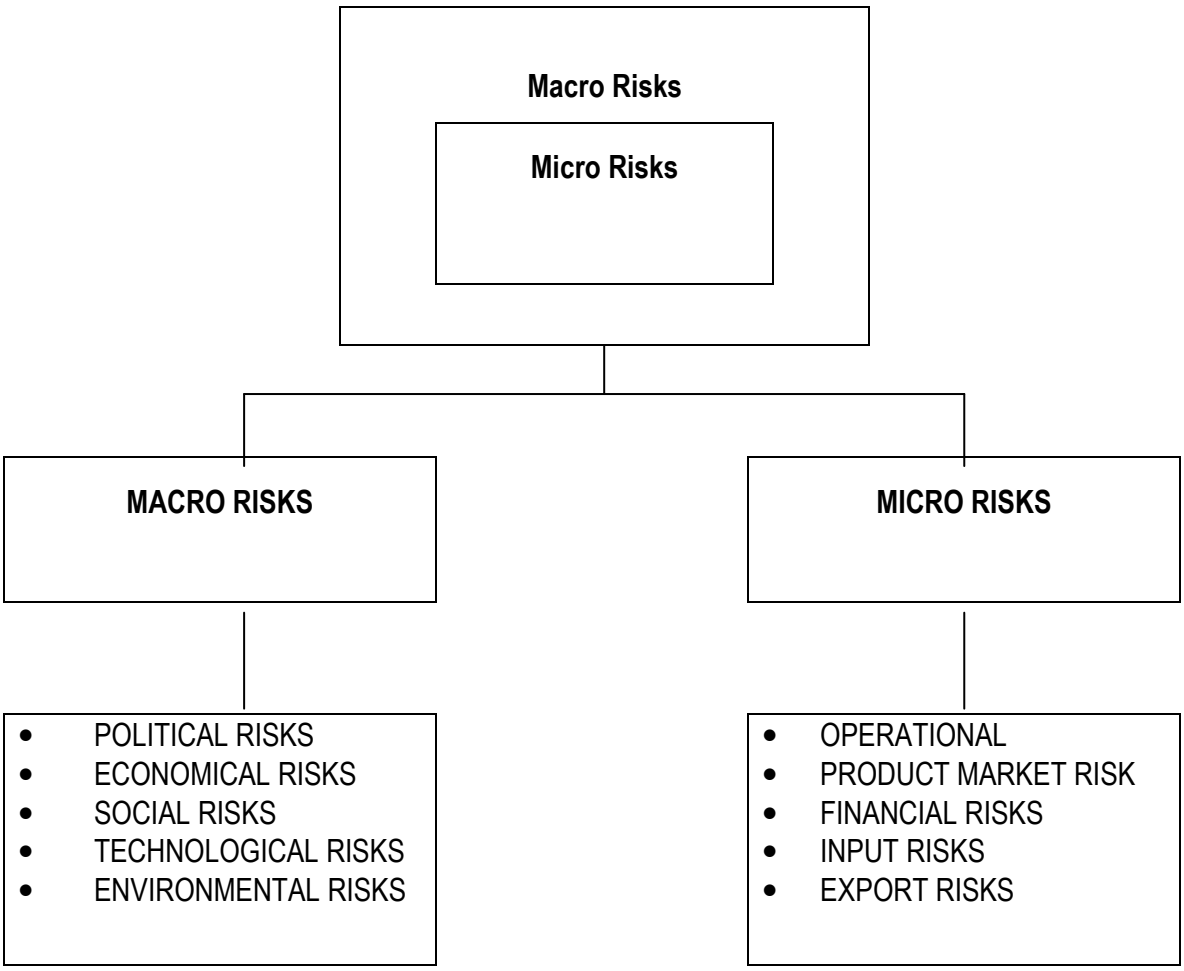


Figure 4: Graphical representation of the risk management process.

CHAPTER 2 WHEAT LITERATURE REVIEW

The literature review is an essential part of any proposed study. A literature review provides the foundation on which a study is conducted. It also ensures that the proposed study expands on the existing body of knowledge. The purpose of this chapter is to clearly highlight and emphasise the existing studies that have been conducted on the wheat industry. This chapter is divided into international wheat milling literature review section, regional studies done on wheat milling in the Southern African Development Community (SADC) and the available literature on wheat milling in South Africa.

2.1 INTERNATIONAL LITERATURE STUDY

The study did not yield any similar studies on the subject of factors that restrict agro-processing development in a wheat industry. However, the following section elaborates on studies supporting the research effort.

In a study conducted on the Indian Agro-processing sector, Kachru (2009) identified objectives as well as strategies to be followed in order to ensure the successful development of the sector. These principles can provide guidelines as well as identify missing institutional and other structures that limit the development of rural wheat milling industries within the Free State and North West provinces. Kachru identified the following ideal objectives of agro-processing programs:

- to minimize product losses
- to add maximum value
- to achieve high quality standards
- to keep processing cost low
- to ensure that a fair share of added value goes to the producer.

To achieve these objectives Kachru (2009) suggested the following strategies:

- The creation of a national plan for the development and extension of agro-processing technology at all levels of the industry, taking into consideration different needs and resources of individual provinces. Programme details and schedules should be included for the first four to five years, as well as periodically reviewed and adjusted.
- Key areas for research and development should be identified and research and development programs created to support the national plan. Effluents from the agro-processing industry should be treated and utilized; therefore provision for these activities must be made within the programme.
- Emphasis should be placed on the establishment of new agro-industrial plants in the production areas to:

    - minimize transport cost
    - make use of the lower cost of land and a more abundant water supply to create
    - employment opportunities in the rural sector
    - utilise process waste and by-products for feed, irrigation and manure
- Infrastructure within production areas should be improved in order to support agro-industrial development.
- The national plan should provide for management of agro-industrial activities within the production areas, both by private companies and individuals as well as cooperatives.
- Financial incentives and support should be provided to promote the modernization of the agro-processing industry and for establishing new such industries in production areas.
- Arrangements to supply market information to the farmer and agro-processor should be created.

De Magistris & Gracia (2008) presented a paper, at the 12th Congress of the European Association of Agricultural Economists. The objective of the paper was to investigate the impact of coordination amongst stakeholders of the food chain on enterprise competitiveness. The main conclusion of the study was that as the quality of the relationships in the Spanish wheat to bread chain improved, stakeholder competitiveness increased. The results also revealed that the quality of relationships in the Spanish wheat to bread chain was based on trust, satisfaction and commitment with buyers/sellers and strongly influenced by communication quality and quantity.

Bavorova & Hockmann (2008) conducted a study on relationships among actors in the wheat to bread chain. The authors found that actors within the chain preferred long-term, independent business relationships. Independence was maintained by exchanging services informally. Members can therefore benefit from the reduced transaction costs associated with long term relationships without the legal obligations of contracts. The main finding of the study was that relationships seemed to be sustainable only if the cost of starting a relationship was exceeded by the long term benefits of cooperation. Relationships among smaller actors can therefore attain sustainability quicker than larger actors.

According to Hofstrand (2007) of the Agricultural Marketing Resource Centre at Iowa State University, a barrier to entry is anything that blocks or impedes the ability of a company to enter an industry, and a barrier to exit is anything that blocks or impedes the ability of a company to leave an industry. Hofstrand (2007), identified the following typical barriers to entry:

- Economies of size – Arises as a barrier when a company needs a large volume of production and sales to reach the cost level per unit of production for profitability.
- Capital intensive activities – When a large capital investment per unit of output limits industry entry.

- Intellectual property – Patents and other types of intellectual property are highly effective in limiting industry entry.
- High switching costs – The tendency for buyers of an industry's products to be reticent about switching to a new supplier tends to limit entry.
- Established brand identity – Industries dominated by branded products are difficult to enter due to the large amount of time and money required to create a competing branded product.
- Permitting requirements – Industries where permitting and licenses are required to establish production tend to have limited entry.
- Government standards – Industries where rigid industry standards exist tend to have limited entry.

Hofstrand (2007) identified the following typical barriers to exit:

- Investment in specialist equipment – Investments in specialized equipment that cannot readily be used in other industries tends to be an impediment to leaving the industry.
- Specialized skills – Highly specialized skills by industry participants that cannot be utilized in other industries tend to be an impediment to leaving the industry.
- High fixed costs – High levels of dedicated fixed costs tend to be an impediment to leaving an industry.

In general, industries that are difficult for new competitors to enter may enjoy periods of good profitability and limited rivalry among competitors. Conversely, industries that are easy to enter attract new companies into the industry during periods of profitability. So, rivalry among competitors can be intense. On the other hand, industries that are difficult to exit have more rivalry than industries that are easy to leave (Hofstrand, 2007).

When combining entry and exit, one can predict industry rivalry, stability and profitability. Figure 5 indicates that an industry which is easy to enter but difficult to leave has strong industry competition and low profitability. At the first sign of excess profitability in the industry, competitors are attracted to the industry. However, when profitability falls, it is difficult to leave the industry so profitability remains low (Hofstrand, 2007).

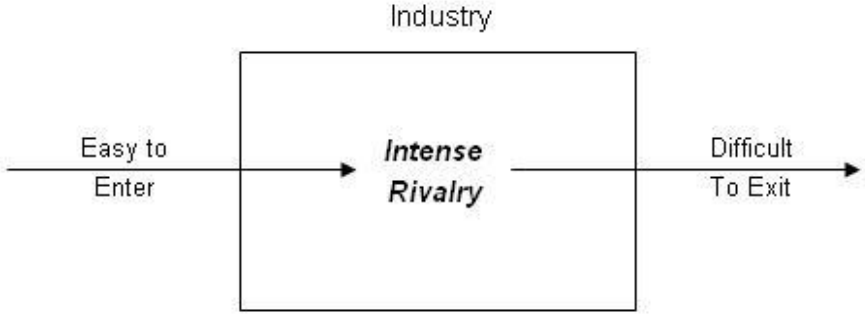


Figure 5: Industries that are easy to enter but difficult to exit.

Source: Hofstrand (2007)

On the other hand, an industry that is difficult to enter but easy to leave is shown in Figure 6. This type of industry has limited industry rivalry and tends to have excellent profitability, and competitors have a difficult time entering the industry. However, during a period of low profitability, competitors leave the industry easily (Hofstrand, 2007).

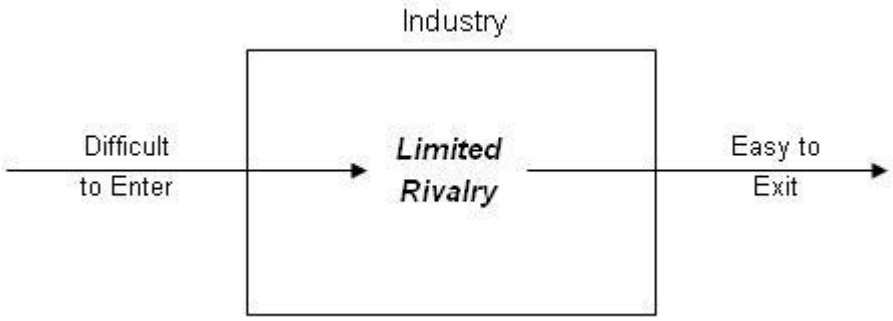


Figure 6: Industries that are difficult to enter and easy to exit.

Source: Hofstrand (2007)

Industries that are easy to enter and easy to exit are shown in Figure 7. The size and composition of the industry is fluid and changes easily. In this type of industry supply responds quickly to changes in demand and prices tend to stabilize. Rivalry is moderate due to the easy flow of businesses in and out of the industry (Hofstrand, 2007).

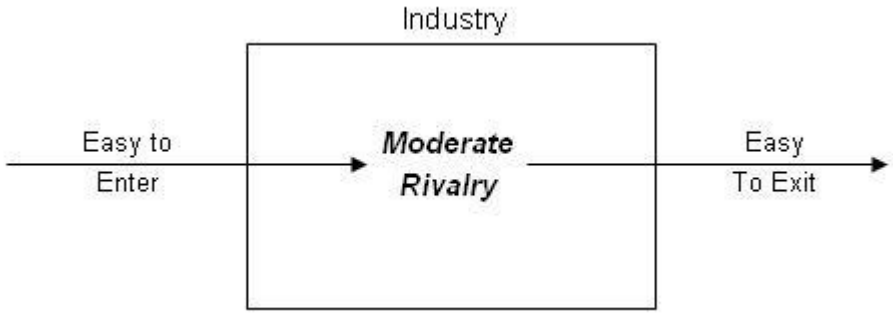


Figure 7: Industries that are easy to enter and easy to exit.

Source: Hofstrand (2007)

Industries that are difficult to enter and to exit are shown in Figure 8. The size and composition of the industry is fixed and changes slowly. Supply changes slowly due to market signals so price responds strongly to changes in demand. The amount of rivalry can change drastically due to changes in demand (Hofstrand, 2007).

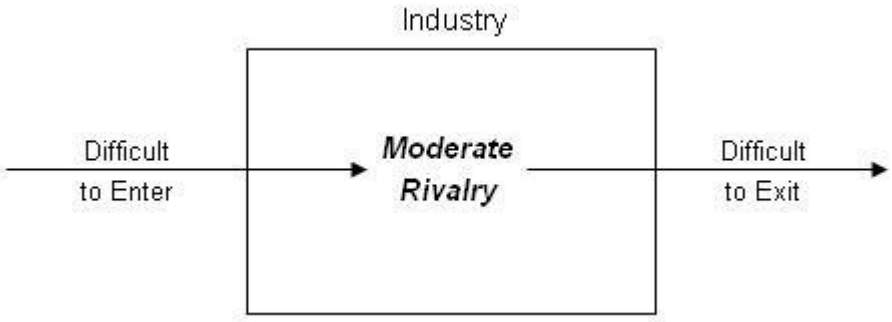


Figure 8: Industries that are difficult to enter and difficult to exit.

Source: Hofstrand (2007)

These scenarios can assist to identify the current situation within the wheat milling industry, and to identify whether barriers to entry, exit or a combination of both limit development in the sector. This will enable focus on relevant problem areas that need to be addressed.

2.2 SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

One study in particular, conducted by Flatters (2002), highlighted the wheat industry in the greater Southern African Development Community (SADC) region. The objectives of this study were to:

- Establish current and future production of wheat and wheat products
- Identify the current processing and consumption of wheat in the SADC region
- Establish a trade mechanism that optimally benefits the whole region through the identification of various market distortions in the world market

One of the most important factors that were identified was the fact that the SADC region is in short supply of wheat and limited wheat is produced outside of South Africa and Zimbabwe protection in the form of tariffs is present in South Africa and Tanzania which to an extent protect the producer and at the same time force prices to hover around import parity levels. On the down side, these high prices impact negatively on processors in SADC due to expensive wheat. As a net importer, the majority of the wheat is imported and thus milled in the SADC region. For a product such as pasta, Durum wheat is needed and is not produced in SADC due to climatic factors. There is thus no other alternative but to import. Flatter (2002) still feels that in order to ensure a competitive milling environment and all role-players in the wheat processing sector are on a level playing field, tariffs need to be reduced. This will promote free trade and at the same time, have none or limited impact on regional grain growers. Whether the wheat that is milled is produced locally or imported is to be determined by the different role-players but, as mentioned, lowering tariffs will ensure all role-players, large and emerging, can benefit from a free market environment. It is also true that in order for markets in SADC to operate efficiently, priority needs to be given to the development of the processing and other relevant sectors.

2.3 SOUTH AFRICA LITERATURE REVIEW

Limited research reports were found that focused on the wheat milling and baking industry in South Africa in the last two decades. A PhD-study conducted by De Kock (1991) aimed to develop a strategic perspective of the wheat industry in South Africa. Future scenarios were used to form an idea of the possible implications that environmental influences may hold for the development of the wheat industry in the long term. Marketing issues which are addressed include the internal and world market potential for wheat and the relative competitiveness of the South African wheat industry in these markets. The production issues included were the potential for and profitability of wheat production in South Africa, the possible influence of trends in the social, economic, political, physical-biological and technological components of the decision-making environment.

The study found that future internal socio-political and economic developments and the nature of international trade policy appear to be the most dominant environmental factor which may influence the future development of the South African wheat industry. The study concluded that a continuation of the present support policies of important wheat exporting countries will have a negative influence on South Africa's competitiveness in the international market. Protection against the direct competition of subsidised foreign wheat will be necessary to keep the industry sustainable in the long term.

In 1999, the NAMC conducted an evaluation on the deregulation process of the wheat to bread value chain. The study aimed to identify the total effect of the deregulation process on the wheat milling and baking industry. The deregulation process included the removal of the registration of bakeries, the bread subsidy, retail price control, fixed prices for the producers, millers and bakers, the state control of imports and exports, fixed price single channel marketing, wheat board agency agreements for handling and storage and wheat board determined quality standards (NAMC, 1999).

The abolishment of the aforementioned resulted in South Africa's grain market becoming one of the most liberal in the world economy today. The study identified that the biggest impact on the industry was that producers are exposed to world markets after the deregulation. Producers had no more bargaining power as wheat is now produced according to the buyer's specific needs. This deregulation resulted in higher price and market risks for producers (NAMC, 1999). This is a valuable consideration in the context of the proposed study to identify barriers to entry for wheat millers and bakers. Higher market and price risk for wheat millers and bakers can result in higher barriers to entry. This is emphasised by the study in that the production of wheat fell after the deregulation.

The impact of deregulation on wheat millers was that they were then exposed to higher procurement risk. Before the deregulation, procurement was considered risk free and simple. After the deregulation, procurement shifted to a more complicated process. Millers must now rely on new instruments like silo certificates, preseason contracts and SAFEX to manage these procurement risk. On the upside, the study found that as a result of the deregulation, competition increased as more small scale millers entered the market. The downside was that this increase in competition led to a reduction in the number of large scale companies, impacting negatively on employment in the country (NAMC, 1999).

Deregulation also impacted on the baking industry. The number of smaller and in-store bakeries increased creating a surplus baking capacity. This surplus baking capacity together with the prescribed delivery zones and production quotas created more pressure on the cost per unit of plant bakeries. This increased level of competition led to further reductions in the number of plant bakeries (NAMC, 1999).

The study further emphasised the fact that the deregulation benefited the consumer in that the consumer now has a wider variety of products to choose from. This benefit however, came at a price. Before the deregulation, the price of bread was controlled and as a result, all consumers paid the same price. After the deregulation, competition for retailers decreased which resulted in considerable higher prices for consumers (NAMC, 1999).

The Food Pricing Monitoring Committee (FPMC) (2003) analysed the wheat-to-bread value chain. The market structure as defined by the FPMC is illustrated by Figure 9 below:

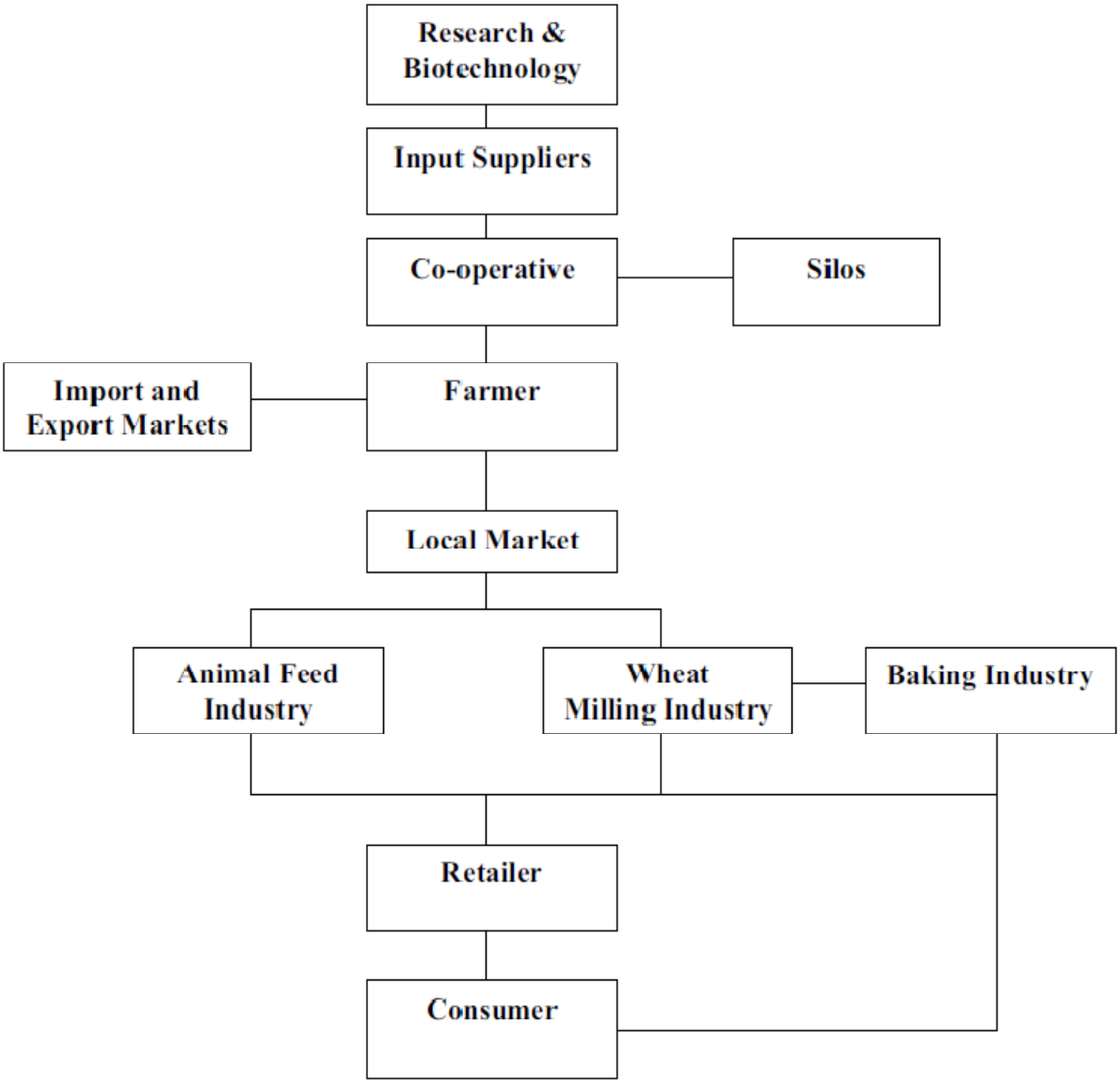


Figure 9: Wheat industry value chain

Source: FPMC (2003)

According to the FPMC (2003), the milling and baking industry is highly concentrated and most of the major millers have vertically integrated with bakeries. This high level of concentration is confirmed by Chabane *et al* (2008). Tiger Brands, for instance, has a controlling interest in the Spar retail group as well as interests in

grain milling. Companies with backward linkages into primary production include Anglo Vaal Industries and Tongaat-Hulett, both of which are involved in primary production of raw material for processing into food commodities (Mather, 2005). Due to difficulties in accessing to finance, wheat imports and the hedge on SAFEX, most small scale millers cannot vertically integrate with bakers.

The baking industry is the major client of the milling industry. According to the South African Chamber of Baking (2010), bakers can be defined as follows: wholesale bakers who operate industrial bakeries, independent bakers who operate stand-alone bakeries, retail bakers who operate in-store bakeries, and emerging bakers originating from previously disadvantaged groups using less than 1 000 kg of flour per week.

At the time of deregulation, approximately 3 000 bakers were registered with the Wheat Board with approximately 80 percent of the bread production in the hands of six large baking groups. During 2003, the number of baking units had increased and was estimated at 7 900. Of these 85 were wholesale bakeries, 600 were in-store corporate bakeries, 3 700 were independent bakers, and 3 500 were franchise bakers (this includes franchise in-store bakeries, biscuit, pie and pizza outlets). The FPMC (2003) attributed the main growth in the number of bakeries to the franchise in-store bakeries. It is estimated that 53 200 informal bakers operate in non-licensed premises (note: this includes people baking for home industries and cake decorators).

In 2004, the NAMC conducted a strategic study for the wheat to bread value chain which was compiled for the Wheat Steering Committee. The main goal of this study was to ensure the long term sustainability of the South Africa wheat industry, after the deregulation in 1997. The vision was to create, within a free market environment, a wheat to bread value chain that meets the needs of the domestic market as well as to be competitive internationally. The study proposed that in order to achieve the specific vision, all members within the value chain must work together in conjunction with the government which will ensure the long term growth and prosperity of the wheat industry (NAMC, 2004).

The study emphasised that there is a positive future for all stakeholders in the industry. However, the industry must recognise that some changes needs to be made in order to ensure the long term sustainability of the industry. The study summarizes the changes as follows (NAMC, 2004):

- Changes must be made to the traditional way of doing business.
- Total commitment must be made to meet the market's needs.
- Stakeholders must align their business plans to government goals.
- Government should take industry needs into consideration when formulating policies.

The study further identified that the number of wheat mills had dropped in South Africa from 137 in 1996/97 to 103 mills in 2004. This is illustrated in Figure 10. At the time of the study, 90 small mills were identified, with 33 large mills producing 97 percent of the South African wheat flour.

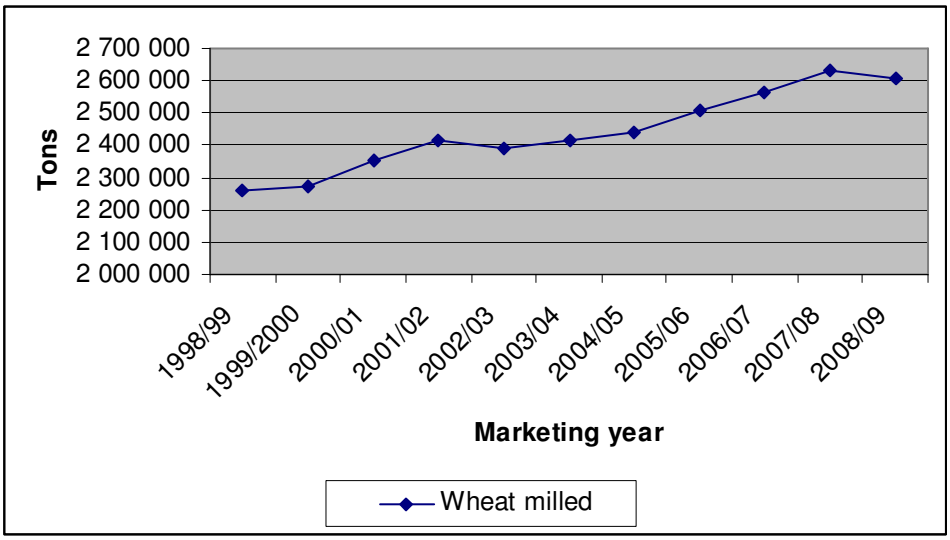


Figure 10: Annual wheat milled in tons
Source: National Chamber of Milling, (2009)

Employment in the wheat industry had decreased by 25 percent from 1992 to 1998 because of improved efficiency and milling units being closed. The study identified that the number of baking units at the time of the study was around 7 900 formal bakers and around 64 900 informal bakers. The growth in the industry took place through the establishment of franchises and in-store bakeries (NAMC, 2004).

After a detailed analysis and on-going discussions between all role players in the industry, a number of objectives were identified by the study. These objectives are seen as the cornerstone of success for the wheat industry and can be summarised as follows (NAMC, 2004):

- Co-operate with government and obtain their active support.
- The value chain must put in place methods of best practice and set standards against which they can constantly be measured.
- Identify international marketing opportunities and monitor and analyse the trade agreements
- Assist in the development of Black Economic Empowerment (BEE), Small, Medium and Micro Enterprises (SMME's) and Woman Owned Enterprises (WE) within the industry.

Mather (2005) identified three consistent patterns in the food processing sector:

- Food processing SMEs tend to sell and market their products outside of the formal retail structures that exist in South Africa. In other words, SME food processors tend not to supply Pick 'n Pay,

Shoprite/Checkers, Woolworths or Spar. Rather than supplying supermarkets, SMEs supply smaller independent retail stores or other enterprises involved in a further stage of processing. Small scale wheat millers, for example, often supply to smaller independent bakeries or the 'in store' bakeries of independent retailers. The link between SME food processors and other SME businesses suggests that there are supply chains which are relatively independent of large processors and retail chains. As a result are food processors away from formal retailers, more involved in supplying black South Africans in townships through spaza shops, through networks of hawkers, or at commuter stations.

- A second finding is that SME food processors usually supply local or regional markets.
- A third finding referred to the competitive position of SME food processors. SMEs in this sector are competitive on the basis of price or quality, but rarely volume. Wheat millers, for example, who supply small bakeries with flour guarantee that their product is suitable for specialty baking.

The FPMC (2003) identified five major firms involved in wheat milling. In 2008, the Competition Commission's investigation in the bread and milling industries concluded that the four major firms dominating the milling of wheat and the production of bread have been colluding to set prices through regular meetings and contact from at least 1994 up to 2007 (Chabane, *et al*. 2008). In addition, the investigation found that the bakeries were engaged in market allocation conduct by agreeing to close down certain bakeries in specific areas in favour of competitors (Chabane, *et al.,* 2008). Premier Foods applied for leniency in exchange for information assisting the Competition Commission, while Tiger Brands entered into a consent order agreement with the Commission for the part that they played in the bread cartel. They were awarded immunity in terms of the Commission's leniency for their role in the milling cartel as they provided the Commission with vital information which the Commission did not have. The cartel investigation illustrated that, despite the deregulation of the maize and wheat value chains, the sectors were effectively privately regulated by the major processing firms (in their own interests).

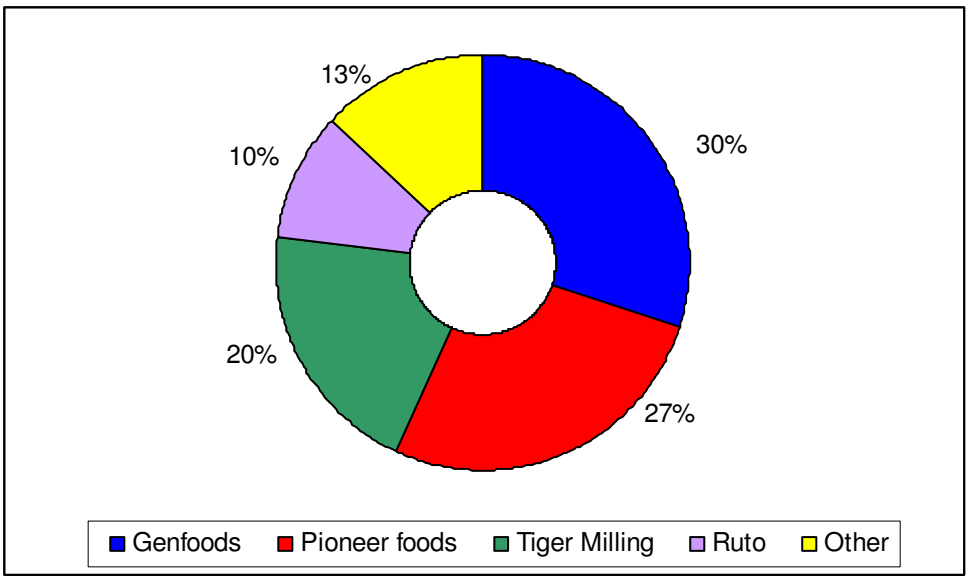


Figure 11: Market share of top wheat milling companies
Source: FPMC, 2003

Meyer & Kirsten conducted a study in 2005 whereby they aimed in modelling the wheat sector in South Africa. The structure of the South African wheat market was analysed using economic theory and econometric modelling techniques. The model is used to make baseline projections regarding the supply and use of wheat in South Africa and to analyse the impacts of various policy alternatives on the wheat sector for the period 2004-2008. Results indicated that the area harvested in the summer as well as winter region will decrease over time. Domestic consumption will marginally increase over time, which will result in higher levels of imports. The ability of the model to simulate policy shocks is illustrated by means of simulating the impact of the elimination of the wheat import tariff on the wheat sector.

Uckerman et al (2008) determined farmer's preference in adopting derivatives contracts to manage price risk. The paper applied a discrete choice model to determine specific characteristics that influence South African grain farmers' preferences to hedge against uncertainties. This was the first empirical study on South African grain producers' preferences to adopt derivative contracting and is based on the survey data of Grain South Africa for 2006. With the application of separate binary logit models for each major grain commodity, they established that different grain farmers are significantly heterogeneous. The results also showed that grain farmers' preferences to adopt derivative contracting are mostly influenced by the farmers' prediction of daily grain prices and trends, farm size and various geographic characteristics. From a policy perspective it has been indicated that food and income insecurity will be reduced if farmers can adopt derivative contracting at large scale since it will enable the producers to produce staple food on a continuous basis at a relatively profitable level.

McDonald et al (2008) conducted a study into the costs and benefits of higher tariffs on wheat imports to South Africa. They found that low international wheat prices, caused by tariffs and subsidies in developed countries, have been blamed as culprits causing the financial difficulty to South African farmers. While indignation at unfair trade practices may be valid, it does not necessarily follow that protection of the local industry is the best response. This study used a static general equilibrium model to describe and quantify the effects of increased tariffs (by up to 25 percentage points) on the local wheat industry, other affected industries—particularly downstream industries—and the economy at large. The effects on factors, households and the government are also analysed. The results showed that the benefits to the wheat industry are highly concentrated and smaller than the loss of income caused in other sectors. Welfare is negatively affected, especially for low-income households, for whom the effects are exacerbated by increases in relative food prices.

The Competition Tribunal imposed a fine of R195 million on JSE-listed food producer Pioneer Foods during 2010 for its role in bread-cartel activities, which were referred to the tribunal in early 2007 following a Competition Commission investigation. The penalty amounted to nearly 10 percent of the 2006 national turnover of Sasko, Pioneer's baking unit. The Competition Commission found that the cartel involved the four primary bakeries including: Tiger Brands' Albany, Premier's Blue Ribbon, Foodcorp's Sunbake, as well as Pioneer, which owns the Sasko and Duens bakeries. Together, the four bakeries enjoyed a market share of between 50 percent and 60 percent of the domestic bread market. Foodcorp agreed to pay an administrative penalty of R46-million in 2009, while Tiger Brands settled the matter in late 2007 and was fined R98-million. Both penalties were somewhat lower than what would have been 10 percent of the revenues arising from their respective bakery divisions for 2006 (Creamer, 2010).

The NAMC conducted an investigation into the wheat-to-bread value chain in 2009. This study was initiated by the Minister of Agriculture and Land Affairs, to investigate the wheat-to-bread value chain with emphasis on the rising price of bread. In an effort to identify the reasons for the increases in bread price, the study identified that the South African bread price increases followed the same international trends. The bread price was subject to economic fundamentals governing these markets, including a shortage of grain commodities which in turn put upward pressure on the price of food (bread) (NAMC, 2009).

The study emphasised the fact that the South African wheat prices are trading at import parity levels. The South African price of wheat is normally determined by the world price of wheat, the exchange rate and the local supply and demand for wheat. South Africa is not self-sufficient in terms of the production of wheat; hence the domestic price of wheat tends to trade closer to import parity levels. The study recommends that there should be a reduction in dependency on imported wheat and that the industry should become more self-

sufficient. If this objective is fulfilled, a sharp decrease in wheat prices can be expected, according to the study (NAMC, 2009).

An interesting finding of the study was that brown bread prices were increasing at a much faster pace than white bread, even though brown bread prices are zero rated and much cheaper to manufacture. The study came to the conclusion (still needs to be clarified) that the price of brown bread is being marked up to make up for the fact that it is zero rated. The study further identified that the wheat producer's share in retail prices dropped from 30 percent in the early 1990's to below 20 percent in 2007. The reason for this is that the price of wheat has changed over time. Millers' share in retail prices also experienced a decrease during the period under consideration. The biggest share in bread price was contributed by Bakers because of the value adding they are responsible for. The retailers' share has not shown any significant growth or decline and has remained stable during the period of the study (NAMC, 2009).

A concern of the study was that the secondary levels of the value chain are highly concentrated with a few firms dominating the market. This is not a good sign for competition within the industry and in turn for the long term affordability of bread. Smaller bakers were of the opinion that the bigger millers tend to negotiate higher flour prices for smaller bakers forcing them out of business. This phenomenon restricts smaller bakers to entry the market and lowers the prospects of healthy competition (NAMC, 2009).

An NDA (2006) study found identified the major strengths, weaknesses, opportunities and threats of the wheat millers in South Africa. These are given in Table 1 below.

Table 1: SA Millers' strengths, weaknesses, opportunities and threats

Strengths	Weaknesses
• Well-organised industry organisations • There are sound infrastructure and training standards • Developed telecommunication network • Availability of workforce • There is a strong Export Committee and highly-skilled professionals and institutions for research	• Inadequate protection against unfair competition • High input costs • Highly-distorted international market • Low export orientation • Lack of innovation for new products
Opportunities	**Threats**
• Beneficiation of raw materials • Available production capacity • Domestic and regional demand • Shift from maize meal to wheat products • Existing preferential export markets (in terms of African Growth Opportunities Act, EU and SADC)	• Unfair competition from cheap subsidised imports • Non-tariff barriers by SACU and SADC-members • Changes in consumer preferences • Changes in regional dynamics and multilateral arrangements • Lack of customised incentives • Poor domestic/regional market economic conditions

Source: NDA, 2006

The Industrial Development Corporation (IDC) concluded a study in April 2010 with the main purpose to provide a strategic overview of the grain milling industry in South Africa. The study highlights some of the grain milling industry main features and key performance trends. The report further identifies certain investment opportunities for the benefit of existing as well as emerging millers within the industry (IDC, 2010). The study by the IDC (2010) provides valuable insight into the objectives of the proposed study to identify factors that limit agro-processing development in the wheat milling industry in South Africa. The study supports this in updating the report.

The IDC (2010) study identified the following barriers to growth that exists within the milling industry (IDC, 2010):

- The milling industry is very capital intensive. The success in the industry is dependant on the capital requirements and to establish brand awareness.
- Access to funding is difficult, especially for small scale millers. The National Chamber of Milling reported that commercial banks and agribusinesses do not fund black farmers because they do not have the necessary security to offer for financing.
- A challenge exists in flour properties that change. High levels of expertise are therefore required to ensure a high quality product is always delivered.
- Large millers, also have their own bakeries, which results in flour being purchased from them. The bakery and miller have contracts between each other which disallow the bakery to purchase flour from other mills. This leaves independent millers in a predicament, forcing them to sell their products at a reduced price.
- Flour dumping in South Africa poses a serious threat for the industry. Subsidised imported flour has an adverse impact on the local mills.

The IDC (2010) study further identifies the key challenges facing the milling industry in South Africa and therefore also the factors that limit agro-processing in South Africa. The challenges mentioned included the following (IDC, 2010):

- Rising costs and access to working capital. The costs of milling are on the rise, millers need to obtain working capital in order to meet demand requirements.
- Raw material procurement. Small scale millers are some times exposed to a situation where for example grade 3 wheat is sold at the same price as grade 1 wheat. This unlawful practise has led to some small scale millers collapsing.
- Inward logistics. South Africa is a net importer of wheat, forcing millers to ship their wheat which is very expensive for small scale millers. Large scale millers have a comparative advantage in that they can ship larger amounts of wheat and have the necessary silo's for storage purposes.
- Transportation infrastructure is a big challenge for the milling industry. Many railway lines are not being properly maintained which forces millers to make use of road transport which is 30 percent more costly.

The IDC (2010) study reported that the four largest millers in South Africa are Sasko Milling, Tiger Milling, Premier Foods and Pride Milling. These four millers account for 40 percent of the market share. However, this market share has decreased from 73 percent prior to 2006 to the 40 percent in recent times. Increased levels of competition and regional marketing of locally produced brands altered their dominance. The study identified that the medium size millers account for approximately 45 percent of the market share, with the remaining 15 percent claimed by small scale millers (IDC, 2010).

The IDC (2010) study identified that from the 137 wheat millers in 1997, only 109 where left in 2007. The reason for this decrease in the number of mills is due to the increased level of competition that exists within the industry as a result of deregulation and under-utilisation of production capacity. The National Chamber of Milling (NCM) describes the industry as a high volume, low profit margin industry. From 1992 to 1998, employment in the industry had decreased by 25 percent, following improved production efficiency and the closure of mill plants.

A Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of the milling industry was also included by the study. Table 2 summarises the SWOT analysis of the IDC (2010) study.

Table 2: The IDC (2010) SWOT analysis for millers in South Africa.

STRENGTHS	WEAKNESSES
1. The grain milling industry is the second largest agricultural sector in terms of its value	1. Inadequate protection against unfair competition.
2. The industry provides staple food products and caters for the domestic market	2. Significant rise in input costs.
3. Foreign exchange earner	3. Fluctuating fuel prices and increasing toll fees.
4. Well developed infrastructure for production	4. The industry is relatively unattractive to investors.
5.Well organised industry association	5. Highly distorted international market.
6.Developed telecommunication network	6. Deteriorating transport infrastructure.
	7. High delivery costs
	8. Small millers do not fortify their flour, with a lack of regulation by government officials.
OPPORTUNITIES	**THREATS**
1. Food crisis experienced world-wide.	1. Unfair competition from cheap subsidised imports.
2. Available production capacity.	2. Substitution of grain products by customers.
3. Shift in consumer demand from other foodstuffs towards bread.	3. Production of grain is dependant on climatic conditions.
4. Shift in consumer demand to organic foods.	4. HIV/Aids and unemployment.
5. Beneficiation of natural resources.	5. Bread price fixing.
6. Growing domestic and regional demand.	6. Imported genetically modified products are threatening the domestic market due to consumer resistance.
7. Alternative international supplier.	

Source: IDC (2010)

Figure 12 below indicates Porter's five forces that impact the ultimate profit potential of an industry. The five forces include the factor conditions, firm strategy, structure and rivalry, demand conditions and the role of the government. The relative signs indicate a positive, neutral or negative impact on the profitability potential of the industry

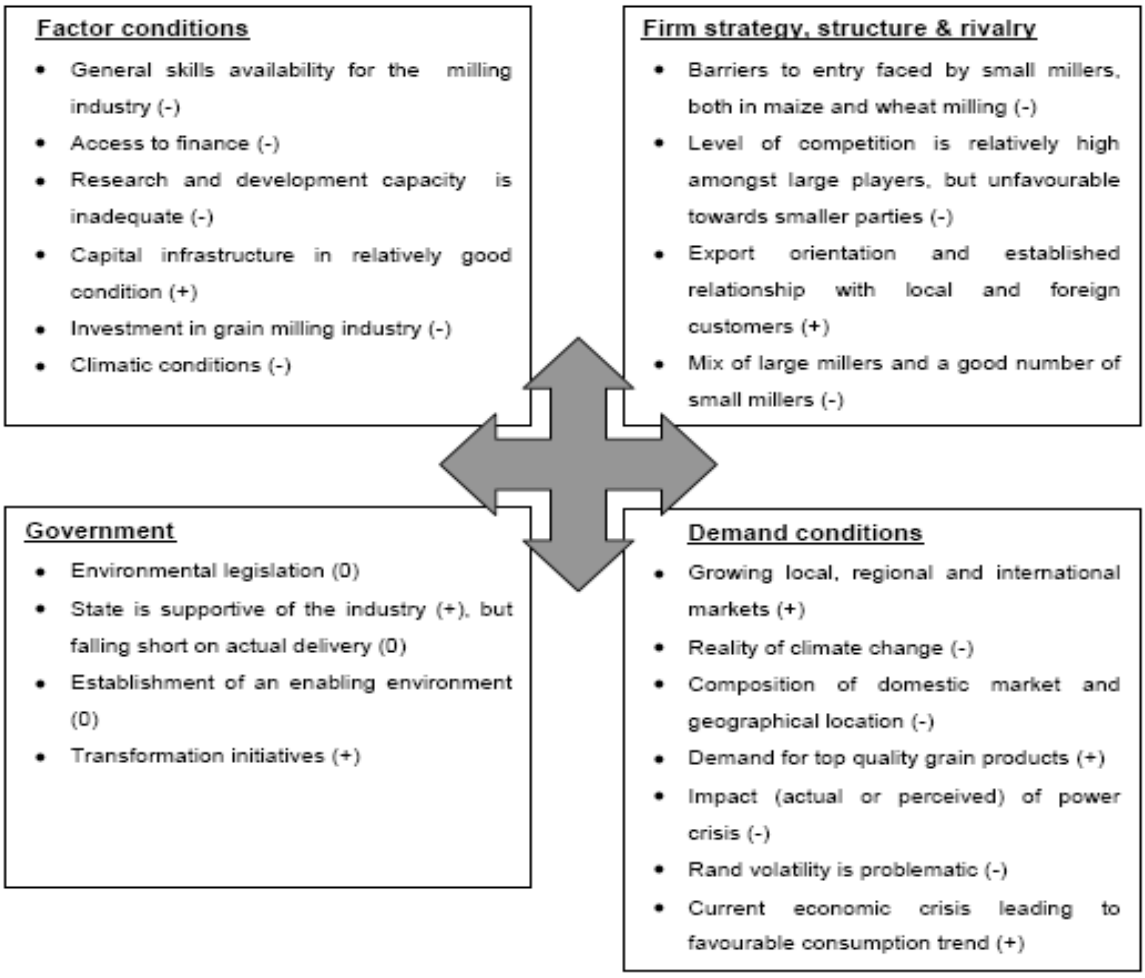


Figure 12: Porters five forces for the milling industry as identified by the IDC (2010)
Source: IDC (2010)

The IDC (2010) study concluded that the greatest challenge facing South Africa is the attainment of food security. This is underpinned by high population growth, high levels of poverty, logistics costs and heavy reliance on a few staple foods. The demand for wheat as a staple food is likely to be sustained for many decades to come. The milling industry will always play a vital role in addressing food security problems, provided that issues such as transportation and power supply are addressed and that the industry's competitiveness is maintained or enhanced.

2.4 CONCLUSIONS

After a thorough and detailed review of the available literature on the wheat industry, a conclusion can be made that the proposed study will expand on the existing body of knowledge an that the study will make a valuable contribution to all stakeholders involved within the industry.

Chapter 3 MARKET OVERVIEW

The following section provides an in-depth overview of the current state of the wheat sector. Special emphasis is placed on the global, Southern African Development Community (SADC) and South African wheat sectors. The main purpose of the global overview section of this market overview is also to identify current trends as far as stock levels, production levels and consumption levels are concerned. It also extends into the challenges and issues faced by the industry as well as a Porter analysis aimed to discuss the competitiveness in the global wheat sector. The South African section aims to identify current South African trends as far as stock, production and consumption levels are concerned. The aim of the market overview is to understand the current state of the global wheat sector. From this, a more precise and concentrated study can be conducted to identify the factors that limit agro-processing development in the wheat milling industry in rural areas.

3.1 GLOBAL WHEAT OVERVIEW

Not only is wheat (Botanicalnameis Triicumaestivum) one of the eight cereals known to man but it is also one of the most widely cultivated grains grown in the world (WFC, 2005). Wheat grain is therefore one of the most important basic food sources for more than three billion people world wide (Schlauri, 2005).

Wheat is generally classified into classes according to the colour of the kernel, the hardness of the grain and the time of planting. The United States grows six classes of wheat:

- Hard red winter
- Soft red winter
- Hard red spring
- Hard white
- Soft white
- Durum (WFC, 2005).

However, the only difference in the wheat among the different classes is the protein content. The protein content does not make a significant difference in terms of nutrition but more in terms of baking quality. Durum, which is the hardest wheat with 14 to 16 percent protein, is generally used for pasta while hard spring wheat with 12 to 18 percent protein is used for yeast breads. Hard winter wheat with a protein content of 10 to 15 percent is used for all different types of flour and bread. Soft wheat with 8 to 11 percent wheat is primarily used for cakes, crackers, cookies, cereals and pastries (WFC, 2005).

3.1.1 STOCK LEVELS

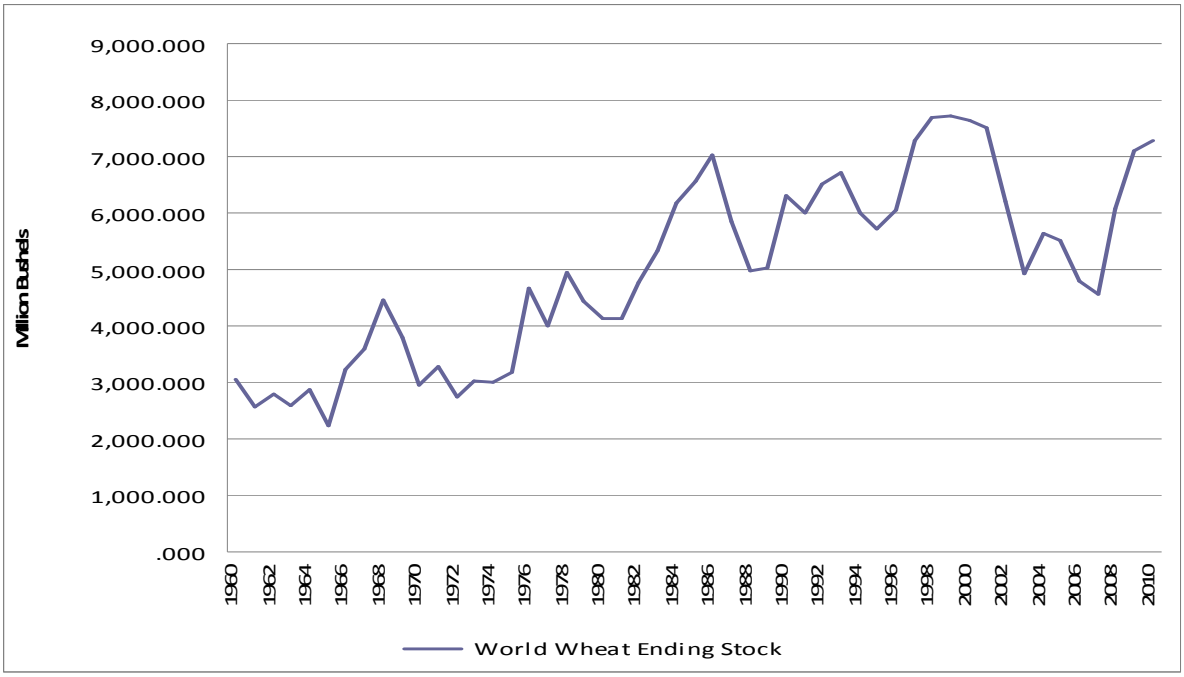


Figure 13: World wheat ending stocks, 1960-2010

Source: USDA, 2010

Figure 13 indicates the global wheat ending stocks in million bushels from 1960 to 2010. According to this figure, wheat ending stocks showed a general increasing trend from 1960 to 2010. Global wheat ending stocks is expected to increase by 2.6 percent from 2009 to 2010.

Table 3: Wheat world estimates for the period 2005/06 to 2009/10

Wheat in million tons					
					Forecast
	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010
Production	595	611	683	680	672
Trade	111	117	143	126	129
Consumption	615	617	642	651	667
Stocks	130	124	165	193	198
Year to Year stock change in ton	-20	-6	41	28	5

Source: USDA, 2010

Table 3 shows the estimates of world wheat stock levels as announced by the United States Department of Agriculture (USDA). From the 2008/09 marketing season to the 2009/10 marketing season, wheat production is expected to decrease by 1.1 percent to 672 million tons, trade in wheat to increase by 2.3 percent to 129

million ton and consumption is likely to increase by 2.4 percent to 667 million tons over the same period. Ending wheat stocks is expected at 198 million ton at the end of the 2009/10 marketing season, an increase of 2.6 percent from the 2008/09 marketing season (USDA, 2010).

3.1.2 PRODUCTION LEVELS

The top ten wheat producing areas produced approximately 80 percent of global wheat production. The five top wheat producing areas can be seen in the pie chart (Figure 14). Figure 14represents the production share of each of the five countries as a percentage of total production of the top five wheat producers. In acreage terms these countries and their wheat acreage production in 2009 were (Agweb, 2010):

- Russia - 71 million acres (29 million hectares)
- India - 69 million acres (28 million hectares)
- European Union (EU) - 63 million acres (25.5 million hectares)
- China - 59 million acres (24 million hectares)
- United States (US) - 49 million acres (20 million hectares)

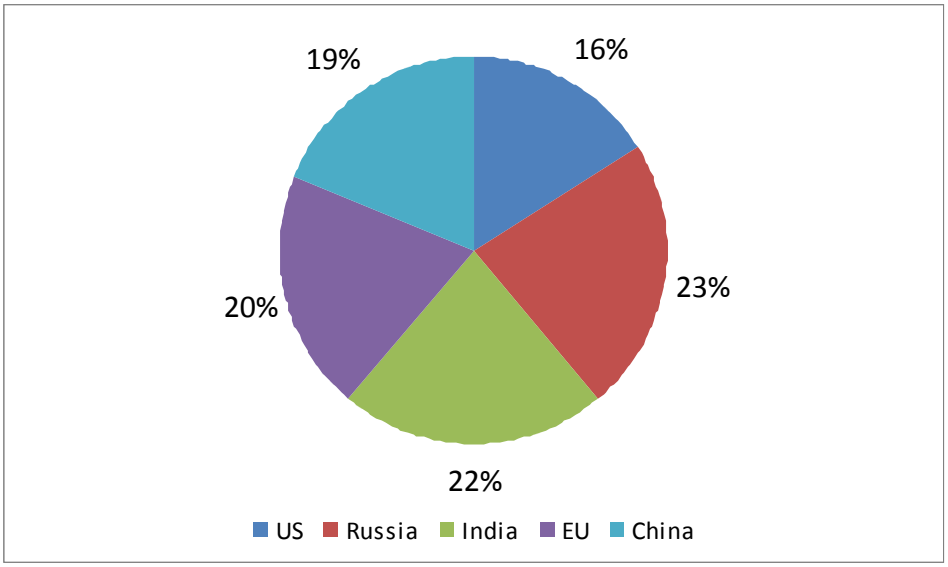


Figure 14: Top five International Wheat Producing Areas based on acreage produced (2010)
Source: Agweb, 2010

The EU had the highest average yield per acre of 76.9 bu/acre (5.17 t/ha) followed by China with 65 bu/acre (4.37 t/ha) and the US with approximately 41.6 bu/acre (2.7 t/ha) for the 2009 production period. Due to technological advances yields in the EU, China and US is expected to increase year on year by 1 bu/acre (0.067 t/ha), 2.2 bu/acre (0.148 t/ha) and 1 bu/acre (0.067 t/ha) respectively (Agweb, 2010).

Wheat production by the top five wheat producing areas in 2009 in billion bushels were and million tons (Agweb, 2010):

- European Union - 5.1 billion bushels (111 million tons)
- China - 4.2 billion bushels (91 million tons)
- India - 3.0 billion bushels (65 million tons)
- Russia - 2.3 billion bushels (50 million tons)
- United States - 2.2 billion bushels (47 million tons).

Figure 15 summarizes the total wheat production of the top five producers in a pie chart.

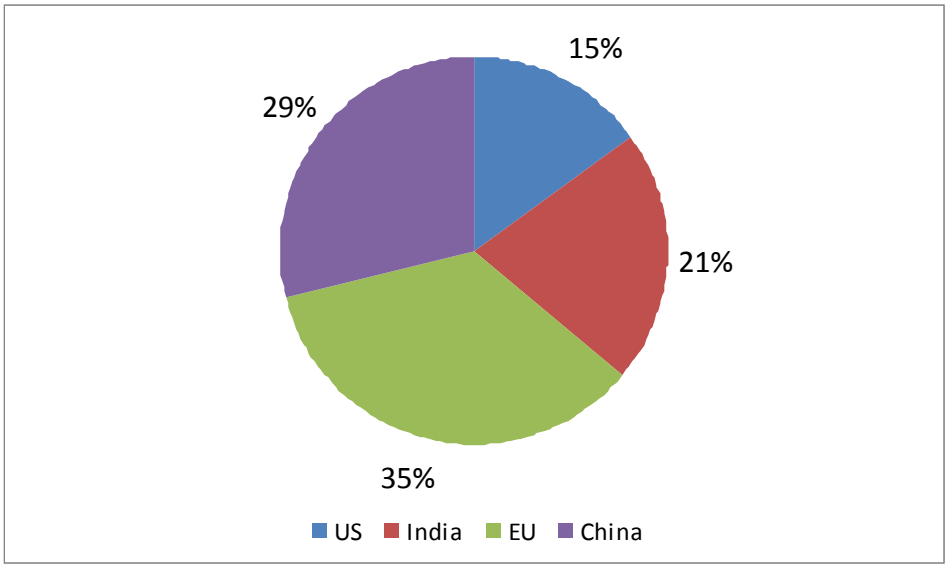


Figure 15: Top five International Wheat Producing Areas based on bushels produced (2010)
Source: Agweb, 2010

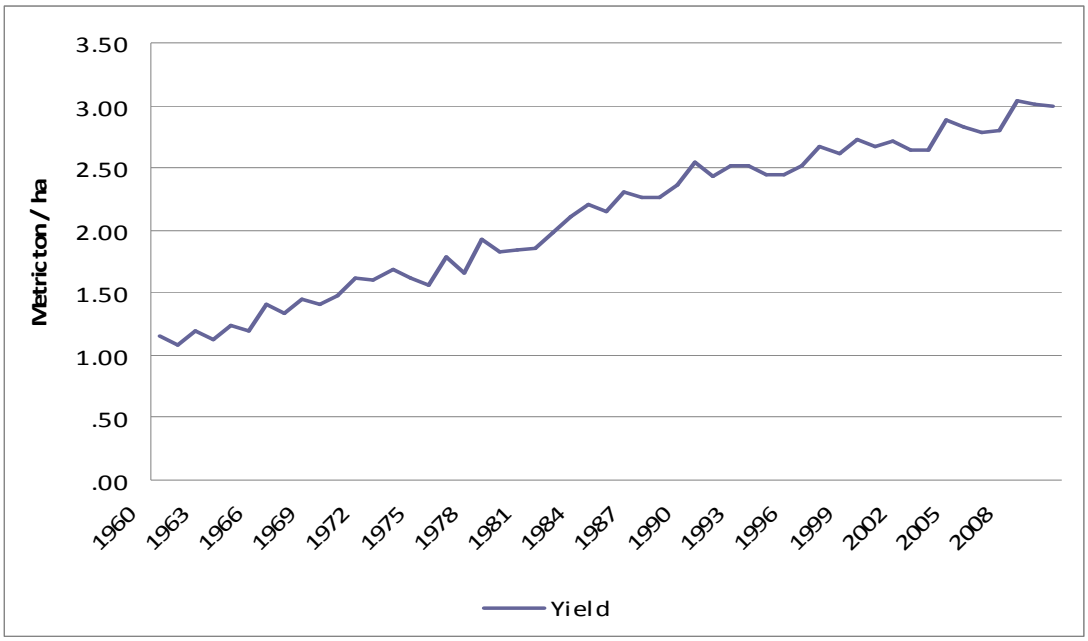


Figure 16: Global Wheat Yields from 1960 to 2009
Source: USDA, 2010

Figure 16 indicates the global wheat yields from 1960 to 2010. An upwards trend can be observed from 1960 to 2010 due to the significant improvements in technology regarding planting methods as well as in inputs used. Yields however show a decline from 2008 to 2009 by 1.3 percent (USDA, 2010).

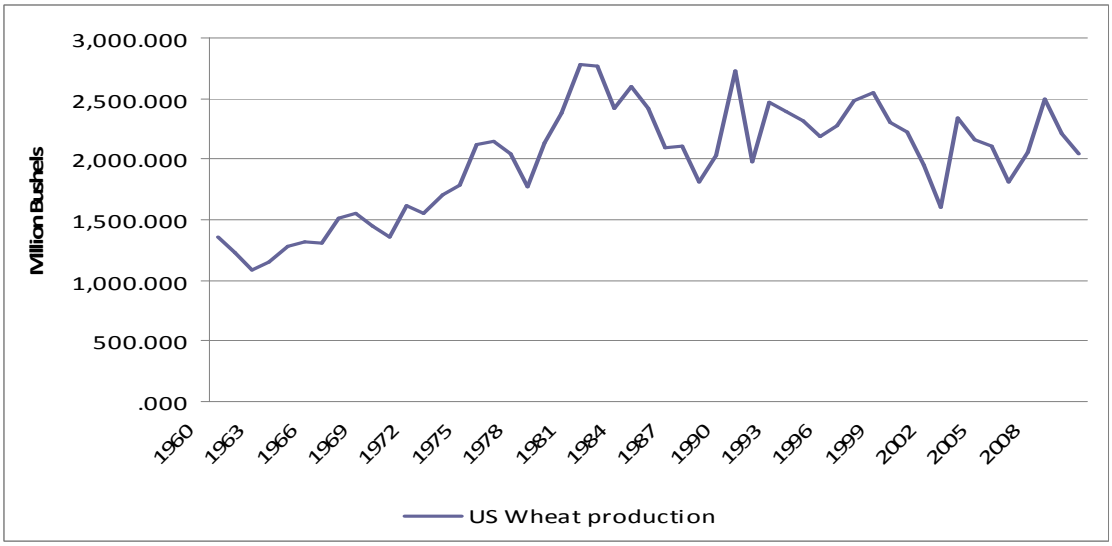


Figure 17: US Wheat Production from 1960 to 2010

Source: USDA, 2010

Figure 17 shows the wheat production in the US from 1960 to 2010. This figure shows an expected decline in wheat production by 11.6 percent from 2.5 billion bu. in 2008 to 2.21 billion bu. in 2009. This is as a result of the reduction in acreage planted and the expected reduction in US wheat yields (USDA, 2010).

3.1.3 CONSUMPTION LEVELS

China, traditionally thought of as a rice consuming country, consumes more than 80 kg of wheat per person per annum, mostly in noodle form. However, other countries have much higher per annum wheat flour consumption per capita such as Algeria with 200 kg, Egypt consuming 173 kg, Israel at 133 kg, France with 109 kg and the USA at 95 kg (WFC, 2005).

Increases in global wheat consumption over the last two to three decades was a result of higher quantities of food wheat that were needed to meet the demand for staple food products in low income and developing countries with increasing populations in Sub-Saharan and North Africa, South and South-East Asia as well as Latin America.

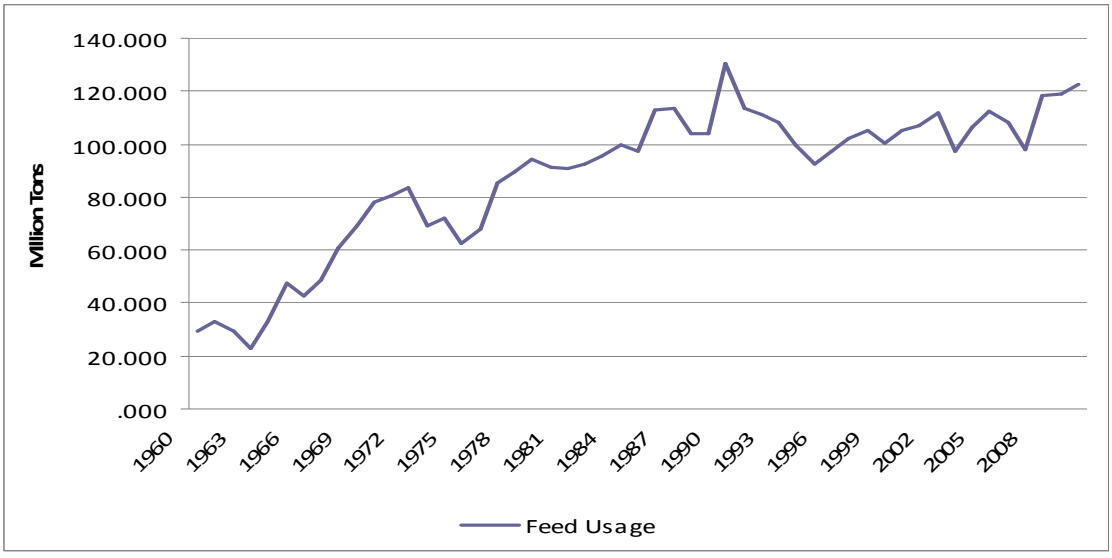


Figure 18: Global Feed Usage in Million Metric tons from 1960 to 2010
Source: USDA, 2010

According to Figure 18 approximately 122.7 million metric tons of wheat will be used as feed in 2010, an increase of 3.27 percent from 118.9 million metric tons in 2009. The global feed wheat usage line graph show a general increasing trend from 1960 to reach an all time high in 1990 (130 million metric tons) (USDA, 2010).

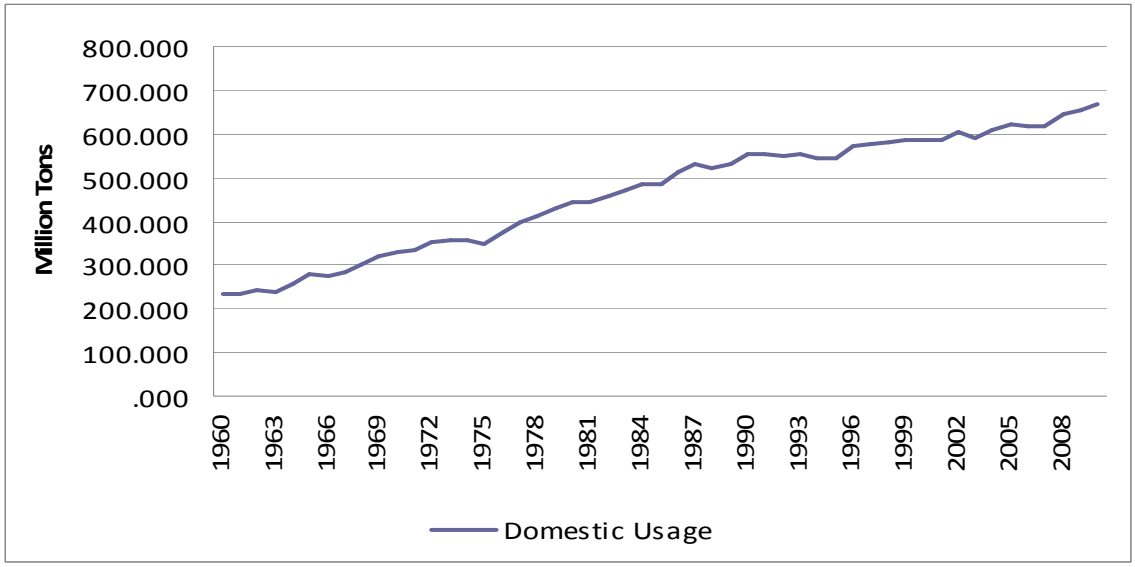


Figure 19: Domestic Usage of Global Wheat from 1960 to 2010
Source: USDA, 2010

From Figure 19 a general upwards trend can be observed in the global food wheat usage from 1960 to 2010. Domestic usage of global wheat is expected to increase by 2.4 percent per annum from 652 million metric tons in 2009 to 667 million metric tons in 2010.

3.1.4 INTERNATIONAL TRADE

Wheat is a highly tradable commodity as it is one of the most common sources of foods, especially staple foods. There are only a few major producers of wheat which results in large volumes of wheat being exported from exporting countries to the rest of the world.

3.1.4.1 IMPORTS

There are many wheat-importing countries and a few of these countries, especially developed countries, are responsible for a large share of the global wheat imports. The most wheat is however imported by developing countries who have limited production potential (USDA, 2009).

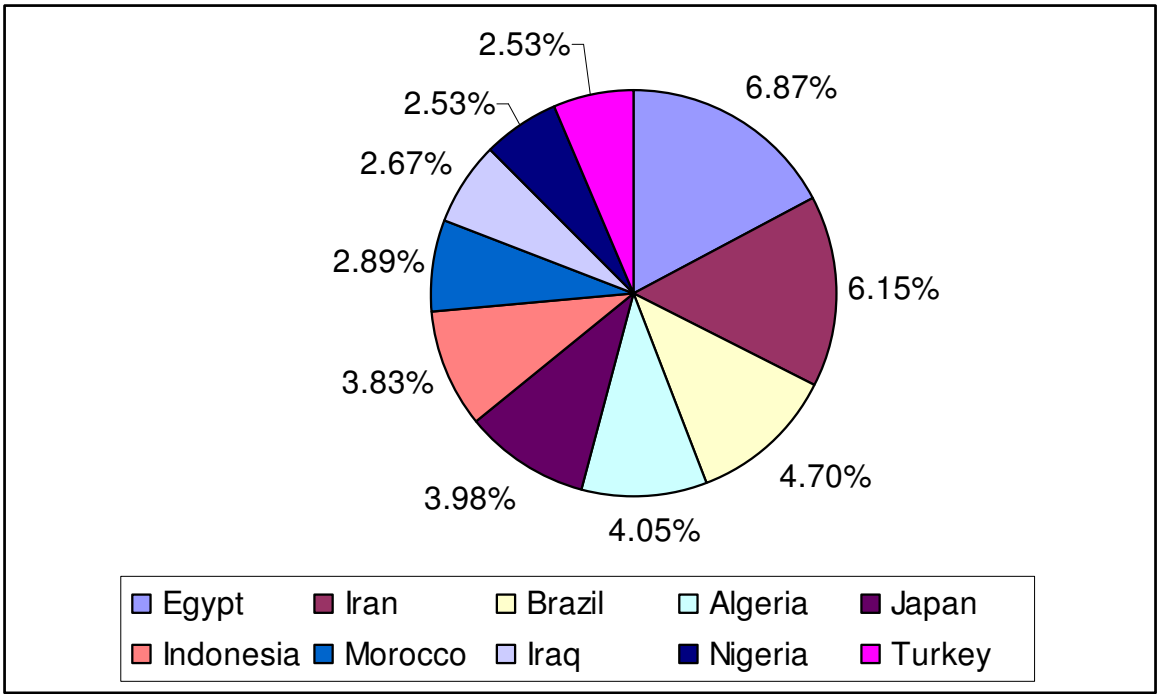


Figure 20: Top ten world wheat importers in percentage in 2008/2009
Source: Reuters, 2010

The top ten wheat importers in the world and their global share of world wheat imports as a percentage in 2008/2009 are:

- Egypt – 6.9 percent
- Iran – 6.15 percent
- Brazil – 4.7 percent
- Algeria – 4.05 percent
- Japan – 3.98 percent
- Indonesia - 3.83 percent
- Morocco – 2.89 percent
- Iraq – 2.67 percent
- Nigeria – 2.53 percent
- Turkey – 2.53 percent

Table 4: **Regional Wheat Imports from 2005 to 2009 and forecasted up to 2011.**

Regional Wheat Imports (thousand metric tons)												
	2005/2006		2006/2007		2007/2008		2008/2009		2009/2010		2010/2011	
	%	tons	%	tons	%	tons	%	tons	%	tons	%	Tons
North America	6%	6 135	6%	7 325	6%	6 535	5%	7 188	5%	6 550	5%	6 500
Central America	1%	1506	1%	1 582	1%	1 460	1%	1 483	1%	1 475	1%	1 525
South America	11 %	12 112	12%	14 018	12 %	13 083	9%	13 138	10 %	12 840	10 %	12 915
European Union	6%	6758	5%	5 137	6%	6 942	6%	7 740	5%	6 000	5%	6 000
Other Europe	1%	1 467	1%	1 505	2%	1 923	1%	1 698	1%	1 775	1%	1 785
Former Soviet Union - 12	5%	5 542	5%	5 958	5%	6 015	5%	6 538	4%	5 500	5%	6 125
Middle East	12 %	13 499	11%	12 092	10 %	11 860	20 %	28 386	17 %	21 300	16 %	19 725
North Africa	17 %	18 622	14%	16 403	19 %	21 743	17 %	23 478	16 %	19 550	17 %	21 500
Sub-Saharan Africa	12 %	13 301	10%	11 814	9%	10 402	10 %	13 542	12 %	14 365	11 %	14 480
East Asia	12 %	12 852	10%	11 886	10 %	11 278	8%	11 322	10 %	12 950	10 %	12 050
South Asia	4%	4 812	10%	10 944	7%	8 270	8%	10 708	6%	6 910	5%	6 710
Southeast Asia	11 %	11 923	11%	12 437	10 %	11 405	9%	12 328	10 %	12 925	11 %	13 925
Others	2%	2 640	2%	2 636	2%	2 777	2%	2 637	2%	2 765	2%	2 815
Total		**111 169**		**113 737**		**113 693**		**140 186**		**124 905**		**126 055**

Source: USDA, 2010

Table 4 illustrates the volumes of wheat imported globally by the major wheat importers. From this it can be seen that wheat imports by North Africa and the mid East, East, South and South Eastern Asia as well as South America reduced from 2004/05 to 2008/09. Wheat imports by Sub-Saharan Africa, Finance Sector Union (FSU), the European Union (EU) and others remained relatively constant over the same period.

3.1.4.2 EXPORTS

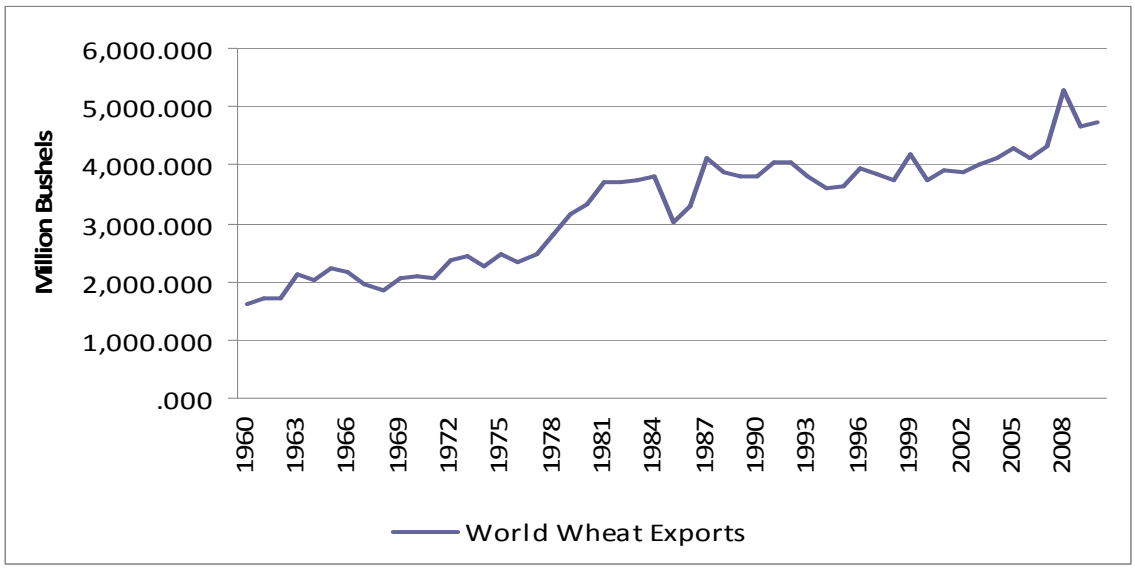


Figure 21: World Wheat Exports (million bu) from 1960 to 2010
Source: USDA, 2010a

Figure 21 illustrates the world wheat exports from 1960 to 2010. From this figure a general upwards trend can be seen peaking at just more than 5 billion metric tons in 2008. The US is by far the largest exporter of wheat globally with 1.1 billion bushels exported per annum in 2008 (Agweb, 2010). This however decreased to reach 865 million bushels in (USDA, 2010). The EU, Russia and Australia were rated amongst the top five global wheat exporters in 2008 with 705 million bushels, 600 million bushels and 450 million bushels respectively (Agweb, 2010).

Global wheat trade peaked in the 1987/88 marketing season at 111.5 million metric tons (USDA, 2009), when large amounts of wheat were imported by the Soviet Union and China. After 1987/88 global wheat trade declined due to lower wheat demands from the above mentioned countries even though demand for wheat increased in developing countries. The barriers to trade implemented by the EU against low quality wheat further dampened global wheat trade (USDA, 2009). In the 2006/07 marketing season, world wheat trade started to increase but stagnated again in the 2007/08 marketing season as a result of high prices (USDA, 2009).

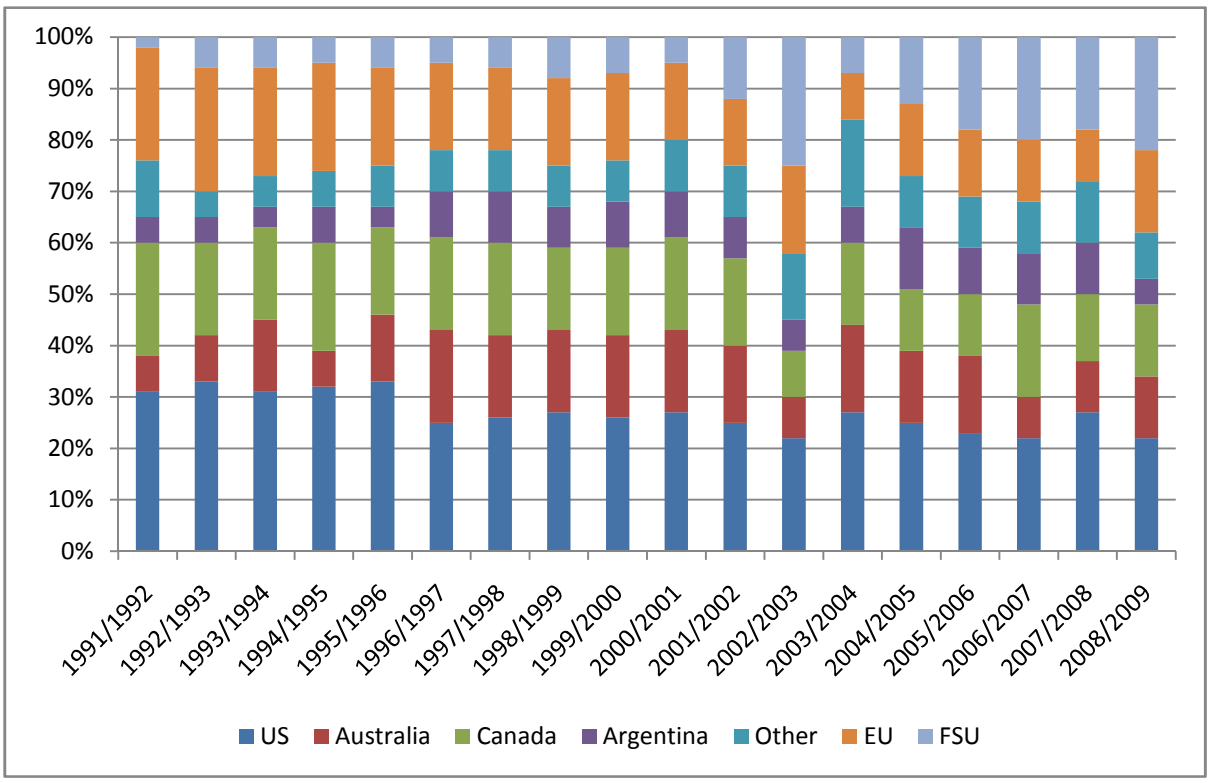


Figure 22: Market share of major wheat exporters (1991/92 – 2008/2009)

Source: USDA, 2009

The major wheat exporters and their market share of world wheat exports are illustrated in Figure 22. The US and the FSU are the leading exporters of wheat with just over 20 percent market share each, followed by the EU and Canada with a market share of just under 20 percent. Australia, Argentina and the rest of the world making up the rest of the market share in global wheat exports. The US wheat export market share declined from 2007 to 2008 while the EU market share of wheat exports increased during the same period.

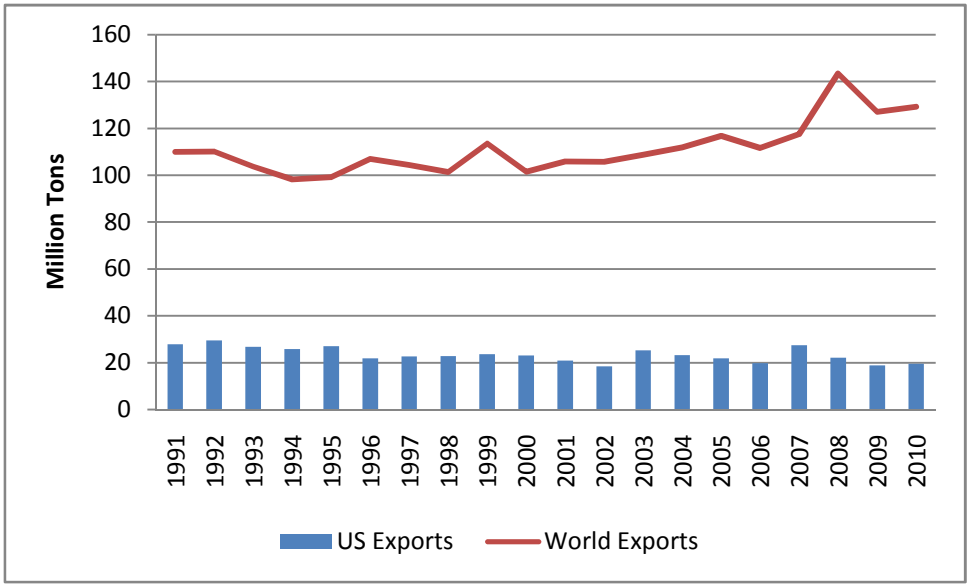


Figure 23: World wheat trade and US exports from 1991 to 2010

Source: USDA, 2010a

The world wheat trade (red line) and the US exports of wheat (blue bars) from 1991 to 2010 is shown in Figure 23. Because the US is the largest exporter of wheat it is expected that the world trade of wheat and the US exports of wheat will follow each other to some extent. Figure 23 illustrates this relationship. However, from 2007 to 2008 the US wheat exports declined somewhat but the world wheat trade increased, this is due to the fact that the EU exported more during the same time period, offsetting the impact that the reduction in US exports had on the world market.

3.1.5 PRICE AND PRICE CYCLES

Wheat prices typically vary between import parity and export parity prices. It is possible that wheat prices move outside the import-export parity band for short periods of times, but market forces will correct this. Wheat prices are primarily determined and influenced by fundamental factors which result in price volatility in the wheat markets. The main fundamental factors that control the wheat market prices are the supply and demand of wheat along with the US dollar. Increases in supply tend to push down wheat prices while increases in demand tend to raise wheat prices. A weaker US dollar will most likely increase wheat prices (CME group, 2009).

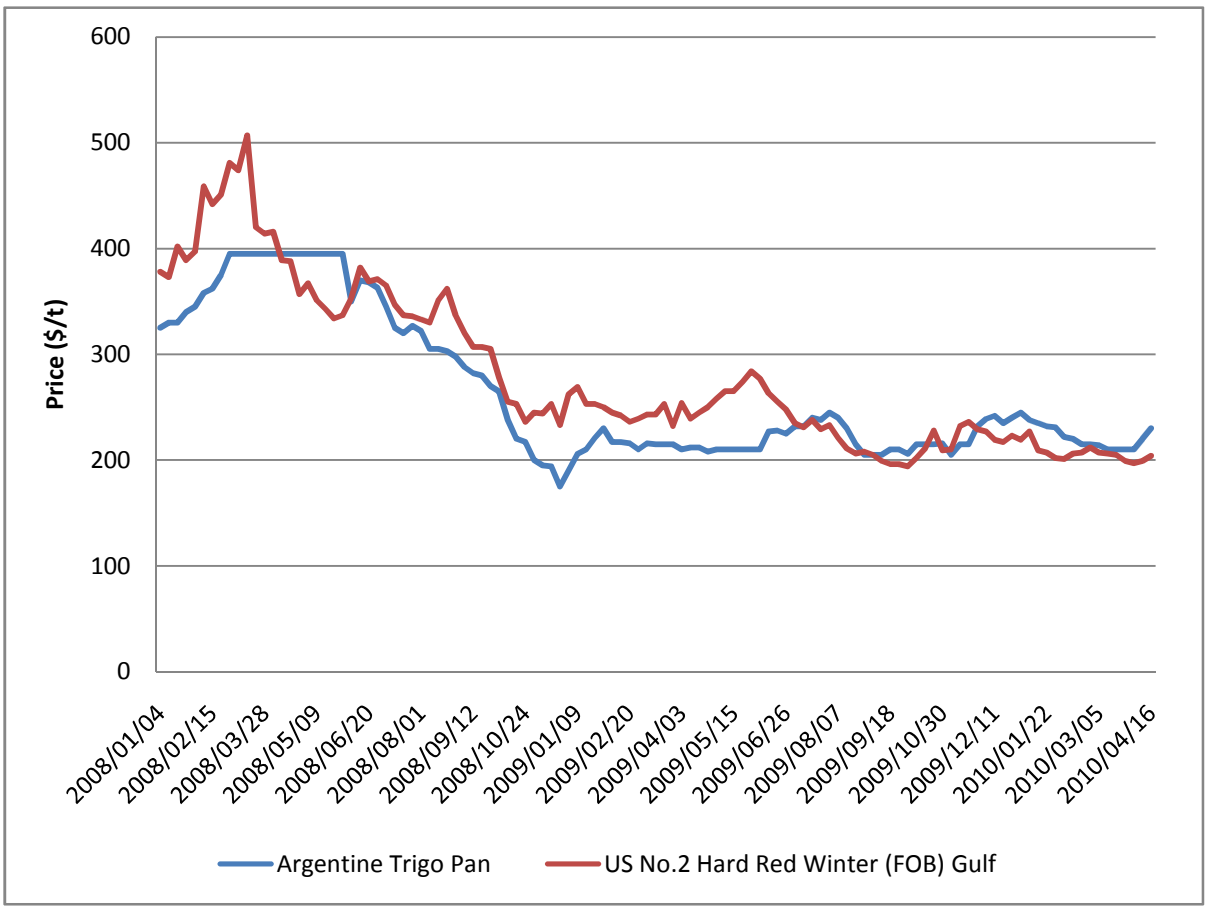


Figure 24: International FOB US hard red wheat and Argentinean wheat prices from 04/01/2008 to 16/04/2010

Source: SAGIS, 2010

According to Figure 24, used in an international grain price presentation by GrainSA (2010), US wheat prices dropped from an all time high of just under $540/ton in February-March 2008 to reach a low of $200/ton at the end of March 2010. Argentinean wheat followed the same trend over the same period. Prices of wheat, both US and Argentina prices, moved between the $150 and $250 price band. Between November 2009 and March 2010 a downwards trend in the international wheat price can be spotted (IGC, 2010).

3.1.6 THE WHEAT MILLING INDUSTRY

The wheat milling industry can be explained by means of Figure 25 below.

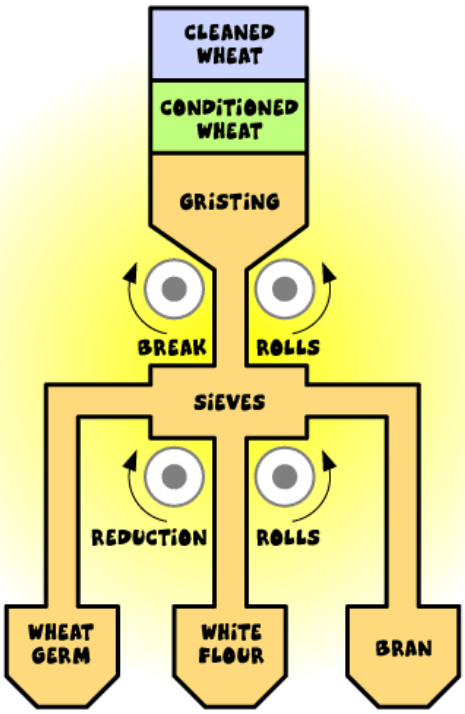


Figure 25: Wheat milling process

Source: Grain chain, 2010

Cleaned wheat enters the wheat mill where it is conditioned and gristed (combining different wheat to produce a mix of high quality low cost flour). It then goes through sieves where it is separated into its constituent parts wheat germ, white flour and bran. Flour is often directly packaged into a ready to be sold form to consumers while bran and wheat germ is used in breakfast cereals or animal feed. Different parts of the grain of wheat is used for the constituent parts, this can be seen in Figure 26 (Grain Chain, 2010).

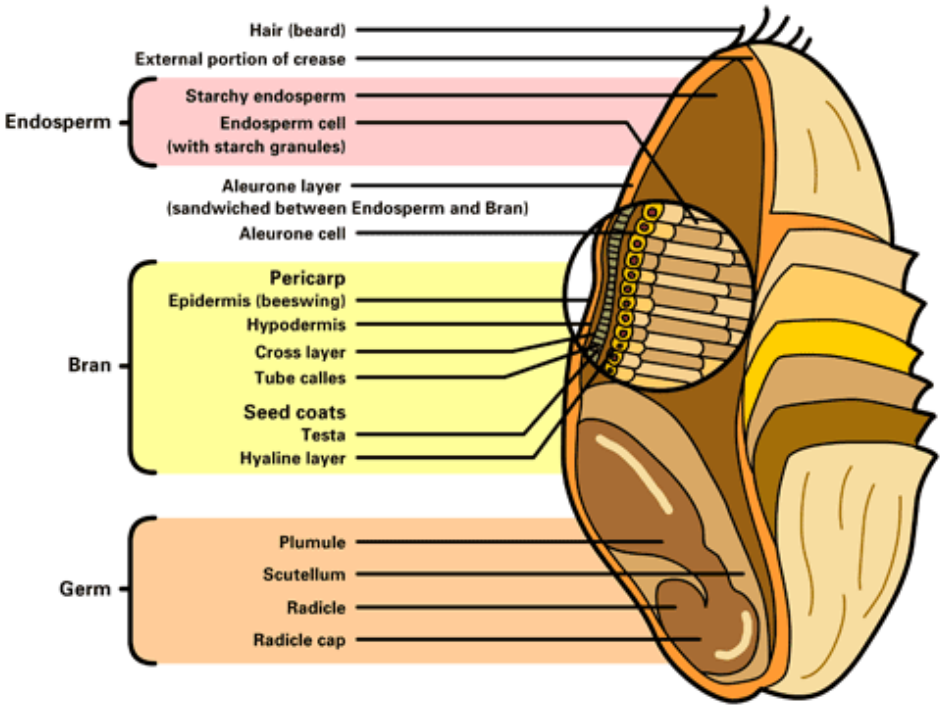


Figure 26: Section through a grain of wheat

Source: Grain train, 2010

Major role players in the international and US wheat milling industries are (Grain Milling, 2010) :

- Cargill, Inc.
- Archer Daniels Midland Company
- ConAgra Foods, Inc.
- General Mills, Inc (IBISWorld, 2010)
- Caribbean Millers' Association
- Confederation of the Food and Drink Industries of the EU
- Grain Elevator and Processing Society
- International Association of Operative Millers
- North American Millers Association

3.1.7 CURRENT ISSUES AND CHALLENGES

World trade, particularly trade of grains didn't reflect the same behaviour during the current economic crisis as with the Great Depression in 1933. The only cited "horror" from the Great Depression that threatens the still shaky world economic situation is rising protectionism that poses a real threat to full economic recovery. A bit more than a year ago countries interfered with grain trade as an attempt to try and control grain prices by limiting exports. The real concern now is that various countries has taken steps in protecting their domestic

industries and one could only wonder if this protectionism will spread to grains and agriculture (Sosland, 2009).

Challenges faced by the EU flour industry:

- Shifts in grain based foods consumption patterns.
- Changes in cultural habits of consumers.
- Changes in perceptions regarding bread and wheat products as a result of rising health awareness.
- The bakery market is dominated by industrial bakeries at the expense of craft bakeries.
- Shifting trade flows (Rabobank, 2010).

Global wheat supply challenges:

- New grain supply chain.
- Climate changes impacts wheat production and supply.
- Demand for grains as a source for “green” energy.
- Variation in quality of wheat.
- Contamination and the presence of impurities in wheat batches (Schlauri, 2005).

Consumer trends based on wheat products:

- Population increases and urbanization raises staple food demand.
- Changing needs to more convenient food related products.
- Consumers demanding food that is healthy and safe.
- Luxury and live style products are becoming increasingly more important to consumers (Schlauri, 2005).

Challenges faced by the wheat milling industry:

- Increase yields by using raw materials optimally.
- Lower production costs by operating milling plants efficiently.
- Produce high quality products by using the best technology and equipment.
- Increase food safety with high sanitation measures and plant engineering (Schlauri, 2005).

3.2 SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC) OVERVIEW

3.2.1 PRODUCTION LEVELS

Wheat production in Southern Africa has up until recent times not been common practice as only half of the SADC countries have produced wheat since the 1995/96 season (Moyo, 2008). The leading wheat producer has been South Africa with production levels that reached a peak at 2.8 million tonnes in the 1996/97 marketing year. Since then South Africa's production levels have dropped to 1.5 million tonnes and 1.9 million tonnes in the marketing years 2003/04 and 2006/07 respectively. South Africa's production level for the 2009 season was 2 million metric tons compared to a recent low of 1.5 million metric tons in 2003. Zimbabwe was the next largest producer of wheat in the region reaching a peak of 3.2 million tonnes in 1999/2000 marketing season. Since then, production levels have dropped to 80 000 tonnes in 2005/2006 marketing year and to the recent low of 12 000 tons in the 2009/10 marketing year (Reuters, 2009). Zimbabwe's severe decrease in production of wheat can be ascribed to the droughts in 2001 and 2002 but more specifically to the government's land reform policy and implementation (Moyo, 2008). Other significant producers in the SADC region are Zambia and Tanzania who managed to reach peak production levels of 136 000 tonnes (in 2003/04) and 115 000 tonnes (in 2005/06). Production in Zambia and Tanzania has increased from their lowest levels of 50 000 tonnes (in 1996/97) and 33 000 tonnes respectively. Namibia and Malawi also produce wheat but in very small amounts, where peak production levels were 2000 (in 2002/03) and 11 000 (in 2005/06) tons respectively (Moyo, 2008). Figure 27 below indicates the total production on wheat by SADC countries including South Africa from 1994 to 2006.

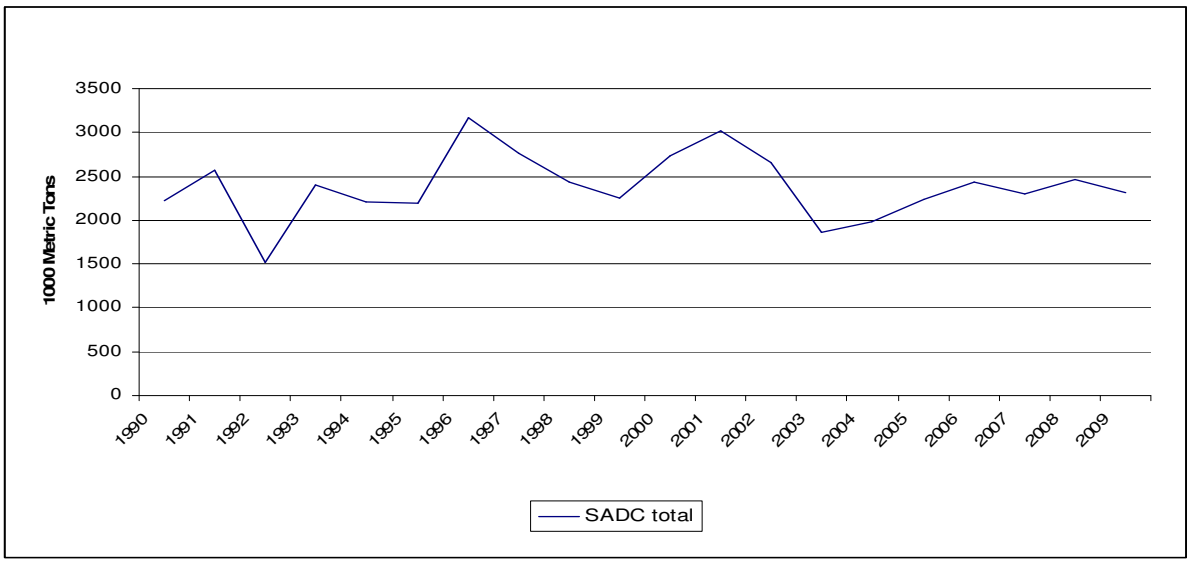


Figure 27: Total SADC Wheat production from 1990 to 2009
Source: USDA, 2010b

3.2.2 CONSUMPTION LEVELS

In Southern Africa the staple food for most households is maize, due to its availability and the high volumes produced. Wheat is considered an alternative food crop to maize especially in areas where it is more available. Wheat is consumed mainly in the form of bread by wealthier households normally in a more urbanised setting as wheat is a costlier cereal compared to maize (FEWS NET, 2010). Domestic requirements needed for the SADC region in the 2006/2007 marketing year amounted to 4 575 000 metric tonnes, increasing slightly in the 2008/2009 marketing year to 4 619 000 metric tonnes (SADC 2006, 2009). Figure 28 indicates the total SADC consumption from 1990 to 2009. From the figure it is clear that consumption within SADC has increased over the last two decades. Consumption within the SADC region has increased annually by 2.68 percent for the last two decades.

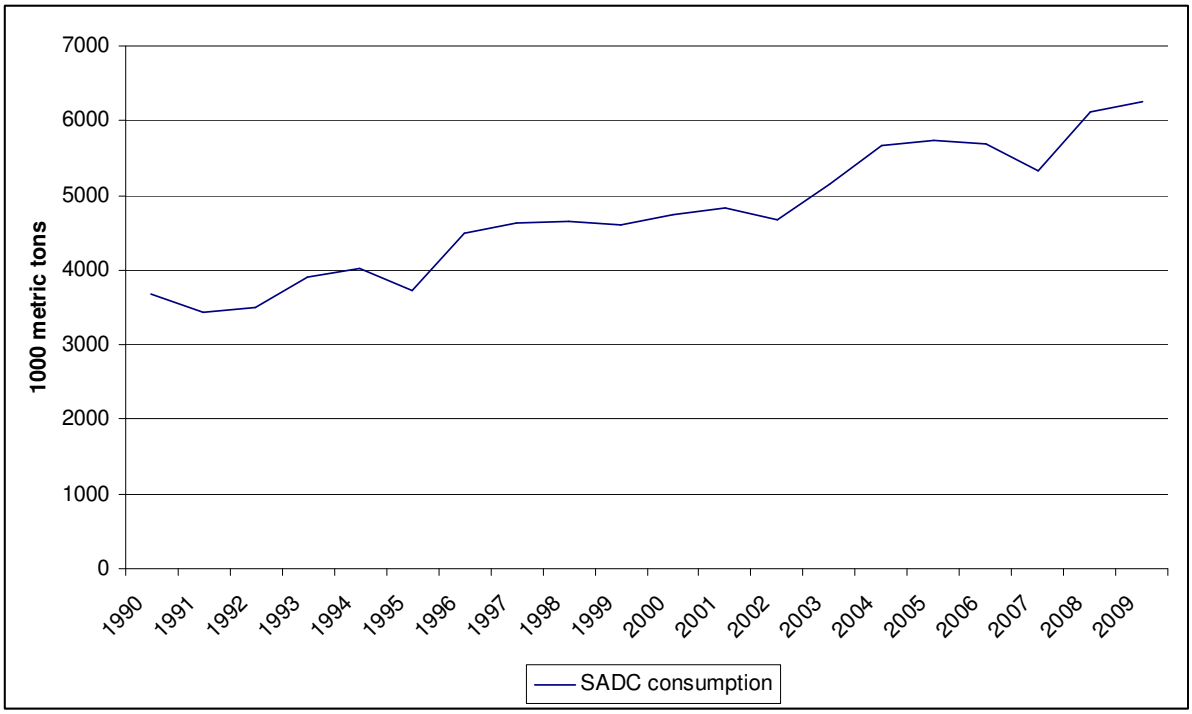


Figure 28: Total SADC consumption from 1990 to 2009
Source: USDA, 2010b

3.2.3 STOCK LEVELS

During the 2009/2010 marketing year the wheat stock for the Southern African Development Community (SADC) region after all exports and imports were taken into account was 1 350 000 metric tons. The 2006/2007 marketing year's wheat stock was 1 845 000 metric tons after all imports and exports were taken into account. This amount indicates the volatility of wheat stocks within the region (SADC, 2006, 2009). This decrease in wheat stocks is a worrying factor as wheat has to be imported. The main reason for this decrease in stock levels has been due to the decrease in production in South Africa which is the region's biggest wheat

producer. Farmers in South Africa are finding it less profitable to plant wheat due to poor harvests, increasing input prices and low prices therefore less land is being planted to wheat (GAIN Report, 2010). The establishment of a Strategic Food Reserve Facility for SADC was proposed at the Extra – Ordinary Summit on Agriculture and Food Security as it would ensure SADC's ability to cope with food emergencies and keeping optimal stocks of grains like wheat to ensure consumers of supply (SADC, Not Dated).

3.2.4 IMPORT AND EXPORT LEVELS

According to the Famine Early Warning System Network's (FEWS NET), Southern Africa Food Security update October 2009, "the SADC region has an overall cereals shortfall because of the deficits in production of wheat and rice and most countries rely on imports to cover requirements" (FEWS NET, 2009). This therefore indicates the need for the SADC region to import most of its wheat requirements from countries outside the region like Canada, Germany, Australia, United States of America (USA), Brazil and Argentina (FEWS NET, 2009). As stated in the paper by Flatters (2002), "Required imports of wheat in SADC have been increasing over the past decade. This trend is expected to continue since demand for wheat flour is income elastic and there are very limited prospects for growth of internationally competitive wheat production in the region". Therefore the SADC region is a net importer of wheat and in the 2008/2009 marketing year the amount imported was 2275 000 metric tonnes, which is significantly more than for the 2006/2007 marketing year where 306 000 metric tonnes were imported (SADC, 2006, 2009). Table 1 below indicates the 2009/2010 marketing season's exports and imports for wheat.

Table 5: SADC Wheat Imports and Exports Progress

	Wheat ('000MT)
Deficit/Surplus	-2 081
Planned Imports	1 958
Planned Exports	234
Uncovered	
Gap/Surplus	-357
Imports Received	710
Exports shipped	76
Imports	
Progress in (percent)	36
Exports	
Progress in (percent)	32

* Balance sheets updated 22 January 2010

* Excludes Democratic Republic of Congo (DRC) and Madagascar

Source: FEWS NET, 2010

SADC, being a net importer of wheat, can therefore only export small amounts such as in the 2008/2009 marketing year when only 223 000 metric tonnes were exported which is a substantial increase from the marketing year 2006/2007 when 1 000 metric tons were exported from the SADC region (SADC, 2006, 2009).

Wheat producing members of SADC like South Africa and Tanzania, protect their domestic wheat growers by imposing tariffs on wheat imports. The South African wheat import tariff has been recently adjusted to a duty of R140.81/ton and was implemented by the South African Revenue Service (SARS) on the 30 April 2010. This was after an investigation by South Africa's International Trade Administration Commission (ITAC) on an increase, as producers lobbied for an even greater increase in duty of R470/ton (GAIN Report, 2010). Zambia and Zimbabwe levy modest tariffs on their wheat import requirement and the only other country in the region to impose a tariff of 2.5 percent is Mozambique. The other members such as Botswana, Lesotho, Namibia and Swaziland (BLNS) do not impose tariffs on wheat imports. Botswana, Lesotho, Namibia and Swaziland (BLNS) are zero wheat tariff members even though they are members of the South African Customs Union (SACU) and therefore have maintained a uniform import duty regime with South Africa. To achieve this zero tariff levy on wheat in these countries a duty rebate program is intended to maintain world price parity for wheat (Flatters, 2002).

3.2.5 PRICES AND PRICE CYCLES

Moyo (2008) states that, "food price formation and trade in the SADC region involves prices transmitted from global food, inputs and financial markets, as well as from pricing processes arising from food the production and marketing processes within the region, especially in South Africa". This gives a good indication that prices SADC countries face, of especially wheat as SADC is a net importer of wheat are determined by global trends and South African trade which occurs on the South African Futures Exchange (SAFEX). Therefore these prices are similar to the prices that neighbouring countries like Lesotho, Namibia, Botswana and Swaziland face (FEWS NET, 2010). The graph below indicates wheat grain prices on SAFEX from February 2004 to February 2010. This is important to SADC countries as Moyo (2008) mentioned that price formation in South Africa determines the SADC wheat pricing. Therefore the graph shows price movements of wheat over the 2004 to 2010 production years.

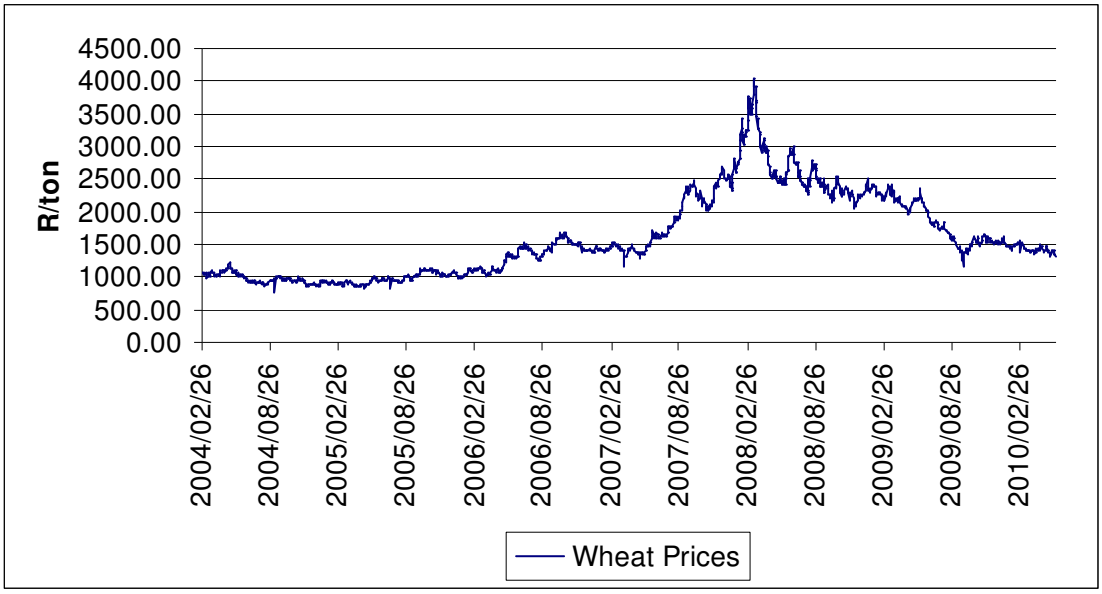


Figure 29: Wheat Grain Prices on the South African Futures Exchange (SAFEX)

Source: Grain SA, 2010

Figure 29 indicates the wheat price movements on SAFEX. Due to South Africa and the rest of SADC importing wheat the price moves between import and export parity prices depending on the amount harvested and the stocks on hand. What is noticeable is that because South Africa and the rest of SADC have to import wheat to meet domestic requirements the price the wheat is acquired at is import parity pricing. Export parity pricing can be achieved if a surplus is produced but this is not normally the case as one can see by the graph above. The wheat price that affects South Africa and the rest of SADC moves between import and export parity prices. However, wheat prices continually move back to import parity due to lack of production and the

need to import wheat into the SADC region. Figure 30 illustrates the import parity levels, export parity levels and the corresponding SAFEX prices from 2000 to 2010 at Randfontein.

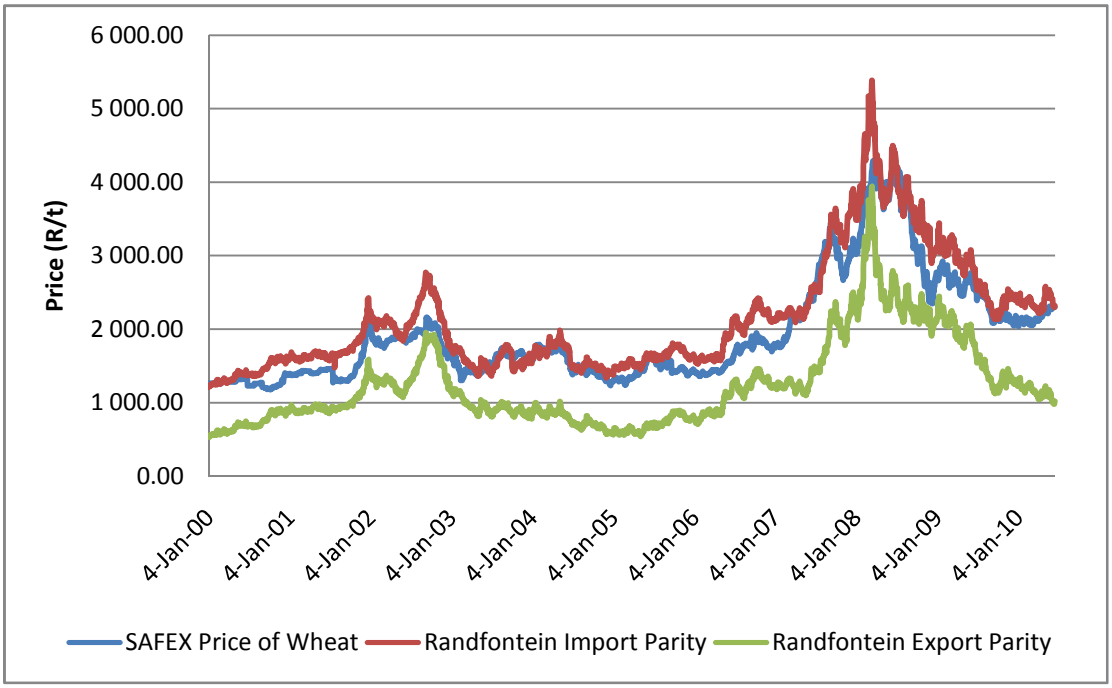


Figure 30: Import and Export Parity levels for South Africa from 2000 to 2010
Source: Grain SA, 2010

3.2.6 FOOD SECURITY

Article 5 of the SADC treaty states two goals which are undeniably linked to food security, one being the alleviation of poverty and the second being the achievement of higher standards of living for the people of SADC (SADC, 1992). Food security is therefore an important goal for SADC as a whole, and as Moyo (2008) states, "national food security can be more efficiently achieved through freer trade than through state interventions in agriculture..." this statement indicates the need for progressive intra SADC trade agreements.

But in terms of wheat and wheat products within the SADC region, variations in production in different states and past protectionist policies have led to differing views on intra SADC trade liberalization for these products. The countries with established wheat production and processing industries tend to resist any form of free trade within the region. But the consumers ultimately pay the price when protection provided for wheat and wheat flour in the form of bread as it is an alternative to maize meal or an integral part of their staple diet (Erasmus & Flatters, 2003). Therefore trade in the wheat and flour industry is an important issue in terms of food security and the SADC Free Trade Agreement signed in August 2008 is a step forward to ensuring former barriers and protection are minimized (Moyo, 2008).

The food price crisis furthermore added to food insecurity in the region as maize and wheat prices remain high which affect households access to adequate food supplies (FEWS NET, 2009). Figure 35 indicates the substantial rise in the ordinary 700 gram brown loaf which is considered a basic consumer staple (Flatters 2002).

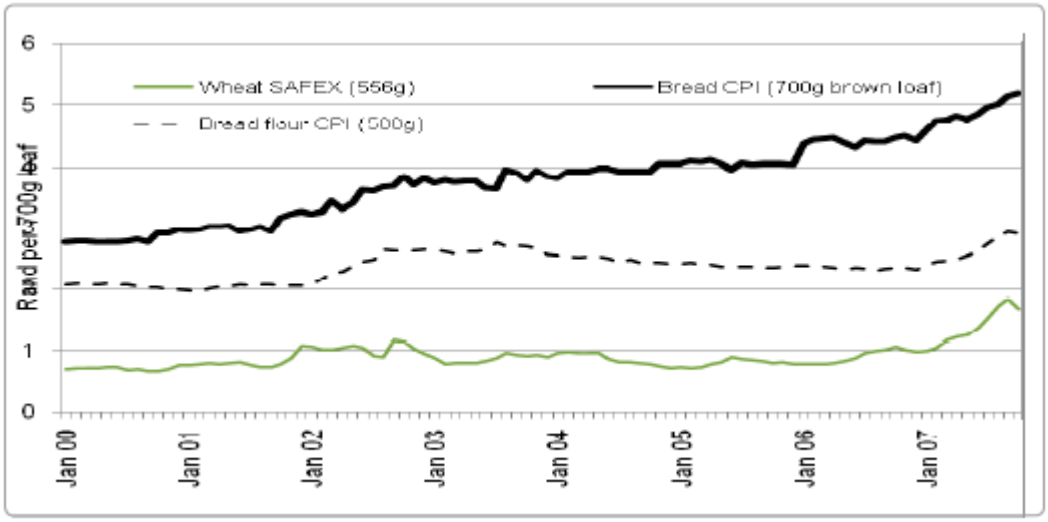


Figure 31: South African Wheat, flour and bread prices
Source: Moyo, 2008

Angola's overall food security situation in 2009/2010 is expected to be much better than the year before. Currently the cereal deficit/ import requirement for the country is 404 000 tonnes compared to 698 000 tonnes in the 2008/2009 season. The current assessment of Botswana's cereal deficit is 288 000 tonnes, which includes 96 000 tonnes of wheat. The food security situation is expected to remain stable as current import plans cover the assessed deficit. Lesotho's cereal production has suffered under poor rains and expensive inputs, which has led to decreased production. Cereal production for the 2009 season in Lesotho came to 86 000 tonnes of which 10 000 tonnes was wheat. Food security in Lesotho is precarious and there is need for humanitarian assistance. Malawi has had an overall cereal surplus for the last three years, mainly due to increases in maize and sorghum production. But deficits still exist in terms of wheat and rice. Mozambique's food security situation in the 2009/2010 season as current assessment indicates a cereal surplus of 75 000 tonnes compared deficit of 167 000 tonnes in 2008/2009 season. Namibia's food security situation for 2009/2010 season was dealt a setback due to the severe floods that occurred in the North of the country.

In the case of South Africa, even though low prices caused production to decline, the country still had 2.17 million tonnes of surplus cereal committed to export to cereal deficit member states. The food security situation in Tanzania is stable for 2009/2010 season even with a cereal deficit. However non-cereal food crops surpluses are expected to cover the cereal deficit. Zambia's food security situation is satisfactory for the 2009/2010 season. But its neighbour to the South, Zimbabwe still faces severe food insecurity.

Supply/demand analyses for 2009/2010 year indicates a cereal deficit of 866 000 tonnes of which 192 000 tonnes is wheat (SADC, 2009).

3.2.7 CURRENT CHALLENGES AND ISSUES

Figure 31 indicates a major issue in the wheat industry especially in wheat producing countries like South Africa. The price the producer receives for wheat is much lower than the price charged by millers and bakers for flour and bread. Therefore this suggests that agro-processors are taking the majority share of the price increases. This situation is aggravated by the import protection over the past 20 years of domestic flour producers. In most of the SADC countries the protection for flour producers is more effective than the import protection of wheat imports (Flatters, 2002). Wheat producers are then at the mercy of foreign imports and are greatly affected by low producer prices.

Another issue that has plagued the wheat milling industry recently has been collusion and price fixing of the major agro-processors in South Africa (Moyo, 2008). The bread cartel in South Africa was formed between the major millers in the country such as Premier Foods, Pioneer Foods, Tiger Milling and Foodcorp (Competition Tribunal, 2010). These recent events have put the wheat milling industry in a negative light as price fixing and colluding has a direct impact on the consumer.

According to the Baker (2009), Premier Foods who produces Blue Ribbon bread significantly, decreased the price of its bread on a national basis due to reduced commodity and input prices. This movement is an effort to pass on savings to the consumers. Even though consumers may not see the price reductions due to the nature of the value chain, Premier Foods is attempting to pass on any savings they may achieve as quickly as possible on to the consumer.

3.2.8 MILLING INDUSTRY

According to Flatters (2002), “South Africa accounts for almost 60 percent of the milling capacity in SADC and the Southern African Customs Union (SACU) for two-thirds of the total”. The concentration of the South African wheat milling industry being such that 33 large mills produce 97 percent of South Africa’s flour (Department of Agriculture, 2006) (Accessed 2010-03-26). Within the rest of SADC, excluding South Africa, milling capacity is found to be equal or slightly more than the domestic market size but there are however three countries where the milling capacity is greater than the domestic flour demand - they are Tanzania, Zimbabwe and South Africa (Flatters, 2002).

Due to the fact that SADC nations are net importers of wheat and only a few countries can produce enough for their own mills, flour milling is afforded substantial effective protection. This reveals itself by import duty rates on flour being higher than those on wheat. To add to the protection of local milling industries Non Tariff Barriers (NTB) are implemented to further protect the local millers. The only countries in the region that do not protect their wheat milling industries are Malawi and Mauritius (Flatters, 2002).

3.3 SOUTH AFRICAN OVERVIEW

This section gives an outline of the current wheat situation in South Africa. It entails the current stock levels, predicted stock levels and provincial planted areas, consumption levels for both human and feed purposes, and the current import and export numbers and exchange rates. There is also a discussion on the prices and the volatility of prices. With food security as an emerging issue in South Africa it is important to consider it in the milling and baking industry.

Wheat is the second most important grain crop produced in South Africa. A large portion of wheat produced in South Africa is bread wheat, with small quantities of durum wheat being produced in certain areas, and is used to produce pasta. In South Africa, wheat is mainly used for human consumption (bread, biscuits, and breakfast cereals) and the remainder is used as seed and animal feed. There are other non food uses such as production of alcohol for ethanol, absorbing agents for disposable diapers, adhesives and industrial uses as starch on coatings (NDA, 2006).

3.3.1 STOCK LEVELS

The formula that is used to calculate the closing stocks is as follows:

$$Closing\ stock = Opening\ stock + Acquisition + Utilisation - RSA\ Exports - Sundries$$

As indicated in the table 1, February 2009 stock level of wheat for human consumption stood at 1 848 thousand tons and ended in February 2010 with 1678 thousand tons this is a decrease if 9 percent (SAGIS, 2010a). The February 2009 stock level of wheat for feed consumption stood at 20 000 tons and ended in February 2010 at 18 000 tons - a decrease of 10 percent (SAGIS, 2010a)

Table 6: The progressive wheat stock levels from February 2009 to February 2010 in '000 ton

	1Feb 2008 - 1Feb 2009			1Feb 2009 - 1Feb 2010		
	Human	**Feed**	**Total**	**Human**	**Feed**	**Total**
	'000 tons			'000 tons		
Opening Stock	1 658	10	**1 668**	1 848	18	**1 866**
Acquisition	3 275	31	**3 306**	3 272	20	**3 292**
Utilisation	-2 810	-7	**-2 817**	-3 175	-18	**-3 193**
RSA Exports	-243	0	**-243**	-254	0	**-254**
Sundries	-32	-16	**-48**	-13	-2	**-15**
Unutilised stock	1 848	18	**1 866**	1 678	18	**1 696**
Stock stored	1 848	18	**1 866**	1 678	18	**1 696**

Source: SAGIS, 2010a

3.3.2 PRODUCTION LEVELS

Figure 34 gives an indication of the production levels and average yields in South Africa from 1990/1991 to 2009/2010*. The 2009/2010* period is only an estimation by Grain SA (Grain SA, 2010). The total wheat area planted in South Africa as indicated in Figure 34 decreased from 748 000 hectares in the 2008/2009 period to 642 500 hectare in the 2009/2010* period, this is a decrease of 14 percent. Western Cape and the Free State are still the two main regions for planting wheat, with Western Cape at 300 000 hectares and Free State at 235 000 hectares. Figure 32 indicates that the Western Cape planted 47 percent which makes it the main wheat planting region and the Free State planted 36 percent of wheat in South Africa (Grain SA, 2010).

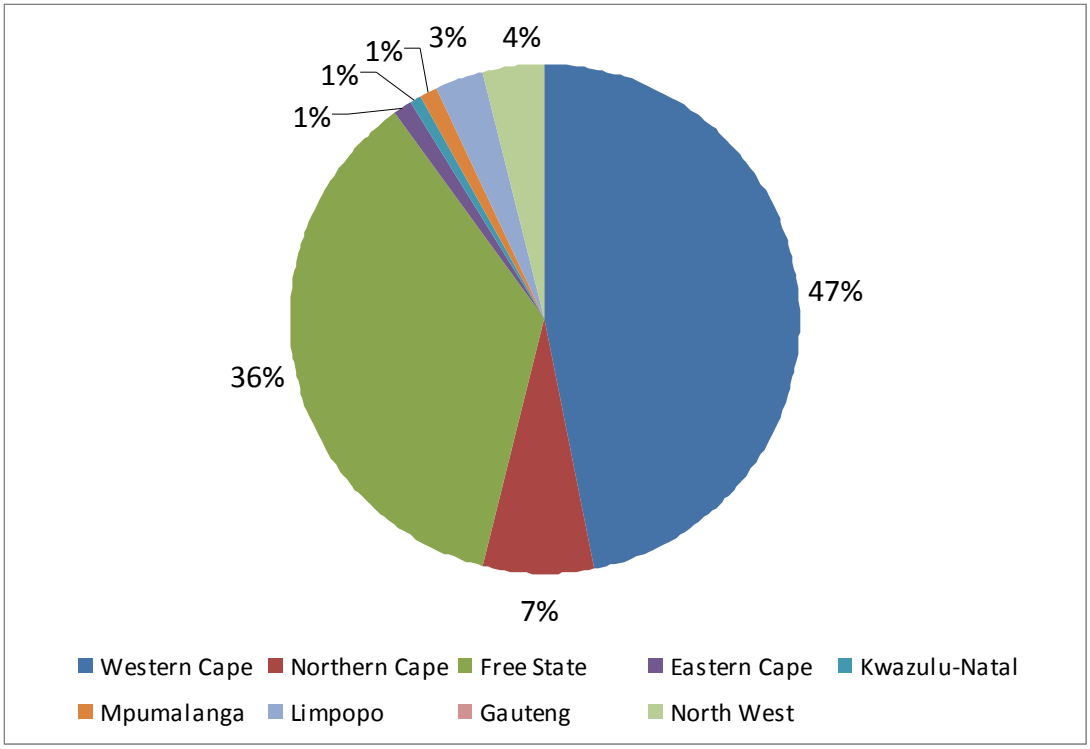


Figure 32: The contribution of each province in RSA to area wheat planted
Source: Grain SA, 2010

In Figure 34 the total production of wheat in South Africa decreased from 2,13 million tons in 2008/2009 period to 1,92 million tons in the 2009/2010* period which is a decrease of 10 percent (Grain SA,2010). Since the area that is planted for wheat decreased by 14 percent between 2008/09 to 2009/10* it is obvious that the total production would also decrease, but at a smaller degree than the area planted. This can be explained by the constant improvement in the technology, genetics that lead to more varieties and planting on better soil that leads to an increase in yield per hectare. Figure 33 shows that the Western Cape is South Africa's main wheat producing area with 35 percent of total production. The Free State is second at 32 percent and the Northern Cape at 15 percent production even though they only have 7 percent of the total area planted. The Northern Cape has the second highest yield per hectare in South Africa at 6.3 t/ha (Grain SA, 2010). Irrigated wheat production plays a major role here.

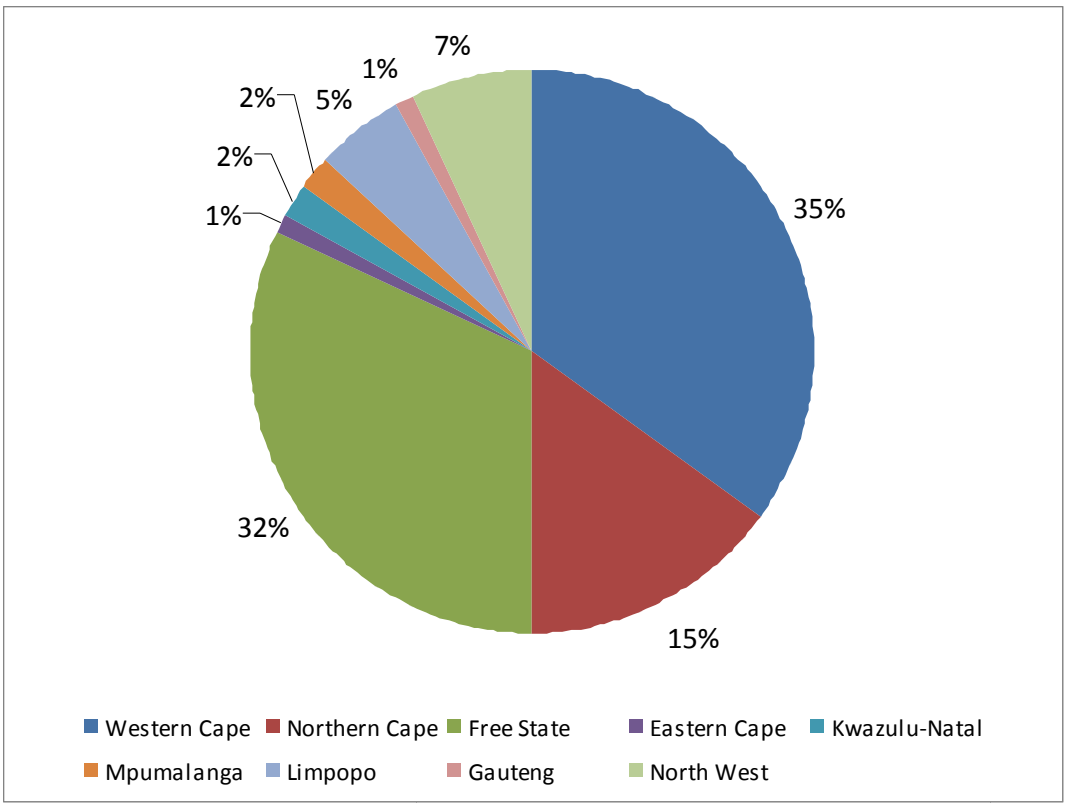


Figure 33: The contribution of each province in South Africa to wheat production
Source: Grain SA, 2010

The area planted for wheat and total production is used to calculate the average yield per hectare specified for each province.

$$\text{Yield} = \frac{\text{Total Production}}{\text{Total area planted}}$$

Figure 34 indicates that the average yield for South Africa increased from 2.85t/ha to 2.99 t/ha and represents a five (5) percent growth in the average yield. As seen in Table 7 Gauteng achieves the highest yield and Western Cape the lowest even though it is the main wheat producing region

Table 7: Average yield (t/ha) of wheat in the RSA per region over 2009/2010* period

Region	**2009/10***
	t/ha
Western Cape	2.25
Northern Cape	6.3
Free State	2.65
Eastern Cape	4.0
Kwazulu-Natal	5.0
Mpumalanga	5.5
Limpopo	5.5
Gauteng	6.4
North West	5.7
Total	**2.99**

Source: Grain SA, 2010

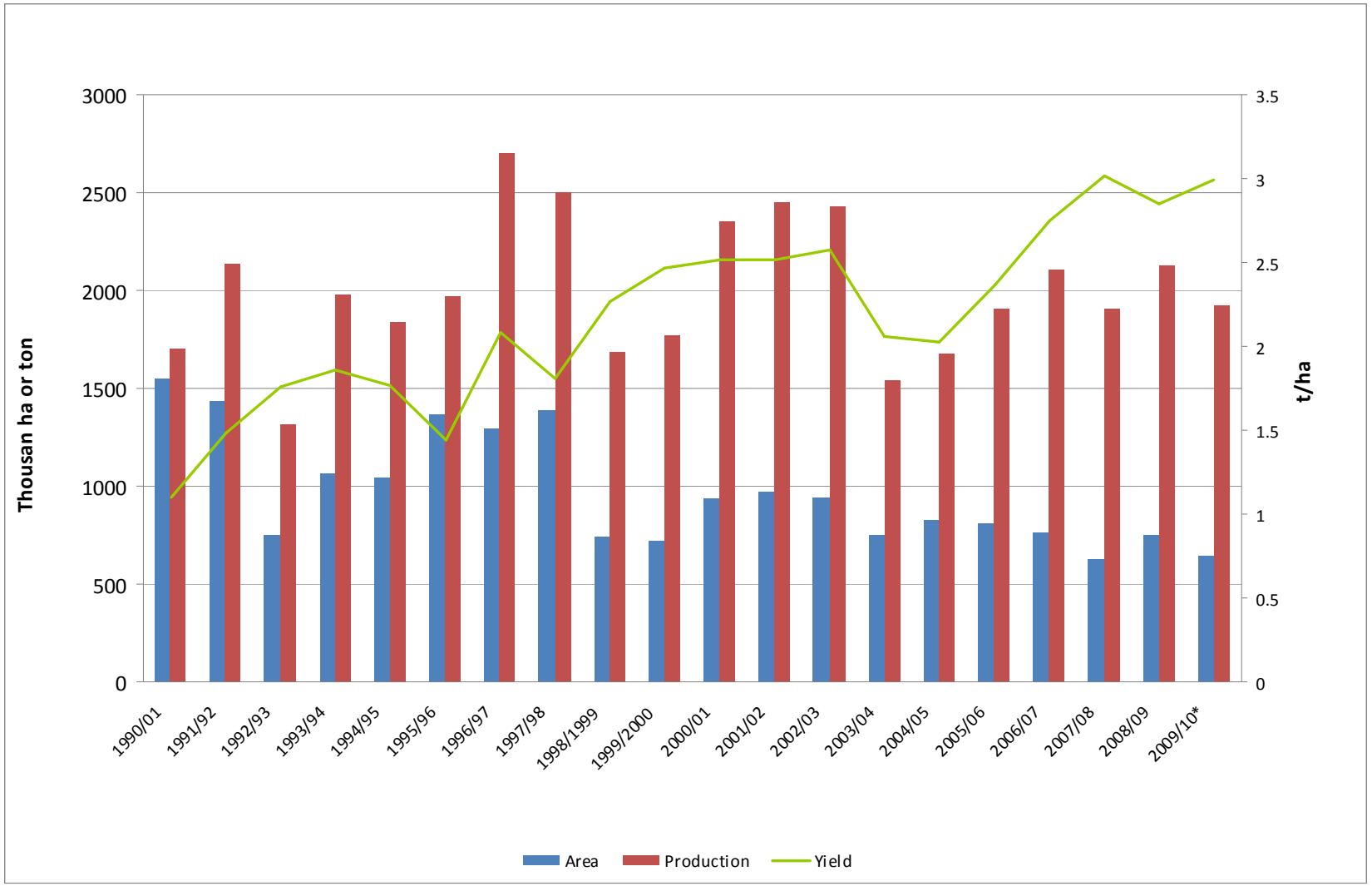


Figure 34: The total area planted for wheat in RSA, the total production and average yield per hectare for the period of 1990 to 2010 *

Source: Grain SA, 2010

3.3.3 CONSUMPTION LEVELS

During the period of 1 February 2009 to 1 February 2010 as indicated in

Table 6 the total utilization for human consumption was 3 180 000 tons. Consumption is further divide into 3 120 000 tons used in processing for the market for specifically human consumption, 2 000 tons was processed into animal feed, 21 000 tons was withdrawn by producers, 5 000 tons was directly delivered to the end consumers and 27 000 tons was used as seeds for planting (SAGIS, 2010a).

The total utilization for feed consumption stood at 18 000 tons, of the total 16 000 tons was processed into animal feed, 1 000 tons was withdrawn by the producers and 1 000 tons was used as seeds for planting purposes (SAGIS, 2010a).

Due to the economic crises households with a lower Life Style Measure (LSM) shifted back to the consumption of maize meal. This did not cause a decrease in the wheat consumption itself as seen in Figure 36 but it only slowed down the growth increase of consumption of wheat. The consumption stayed stable between the 2008 and 2010 (NDA, 2010). As the local economy recovers for the recession and household income improves, wheat consumption will have and an upward trend over the baseline. This can be seen in the Figure 35 (BFAP, 2009).

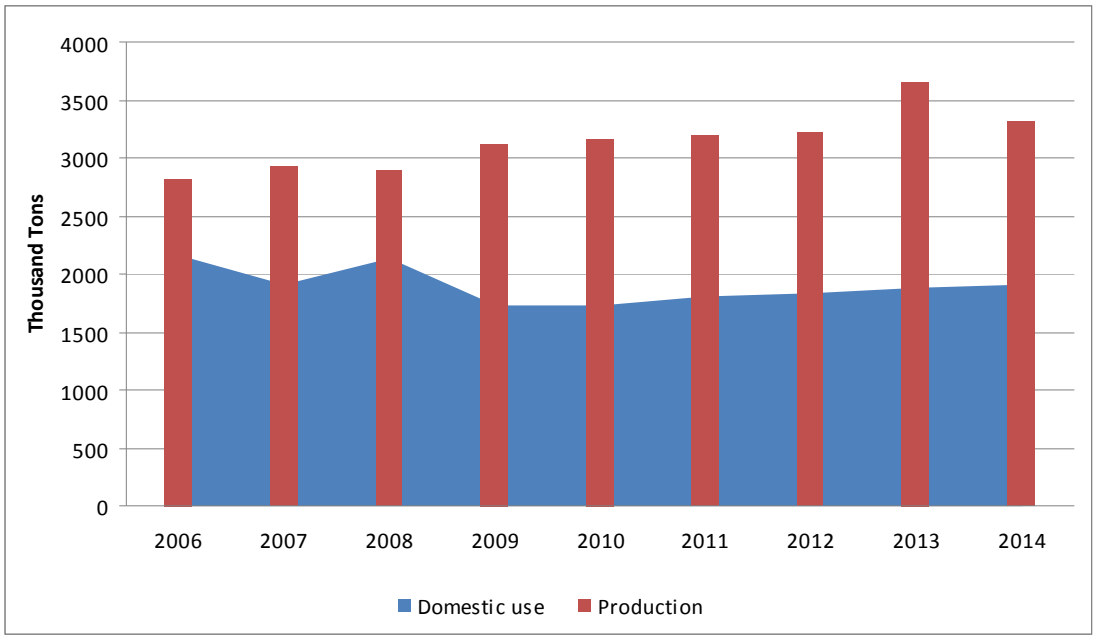


Figure 35: Wheat production and utilisation in South Africa for 2006 to 2014
Source: BFAP, 2009

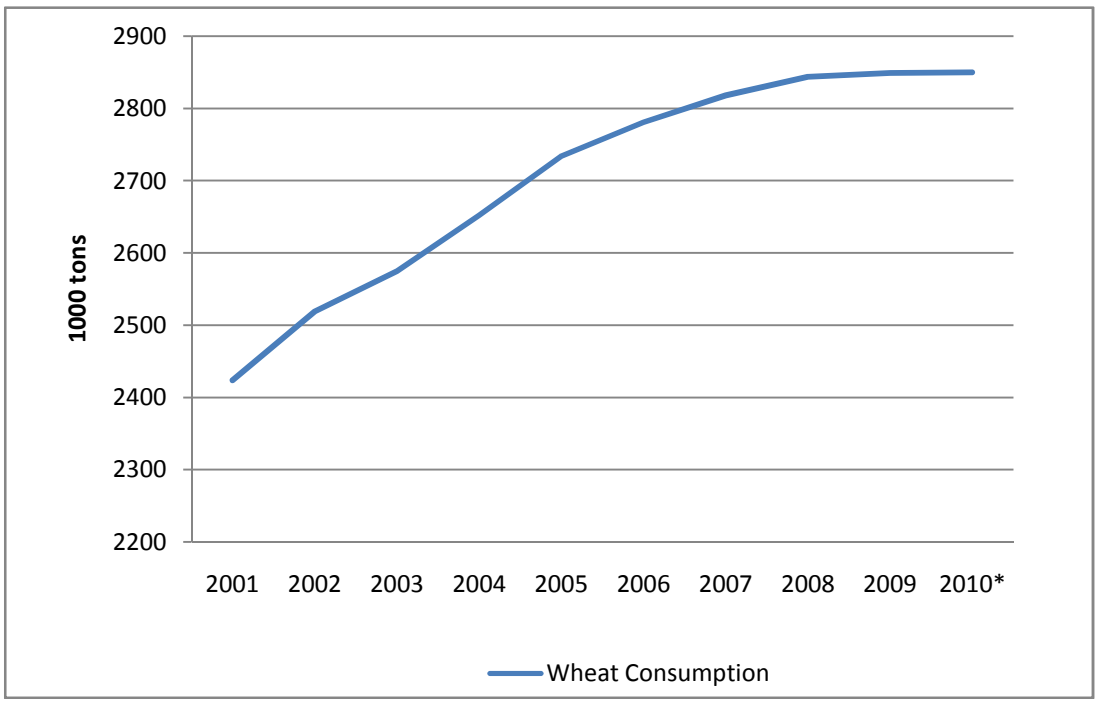


Figure 36: Wheat consumption for South Africa (2001 – 2010*)
Source: NDA, 2010

3.3.4 IMPORT AND EXPORT LEVELS

Table 6 in section 3.3.1 indicated that during the period of 1 February 2009 to February 2010 wheat exports amounted to a total of 254 000 tons, of which 28 000 tons of wheat products is exported to African countries and 226 000 tons of whole wheat to border posts. No wheat was exported via harbours in this period (SAGIS, 2010a).

South Africa is expected to continue to produce less wheat than what is demanded and to remain a net importer. The reason for this is that South Africa's wheat prices are trading at the import parity levels exposing the wheat industry to cheaper imports. To counter this, import tariffs must be increased, in order for the import parity level to increase. This will relieve import pressure for local producers. If South Africa does not protect their local wheat farmers, the total wheat production area will decrease as has been the case in recent times. This will leave South Africa in a situation where they have to rely on wheat imports to keep up with domestic demand. Exports into neighbouring African countries will continue to be relatively low. The high import and low export trend can be seen in Figure 37 below (BFAP, 2009).

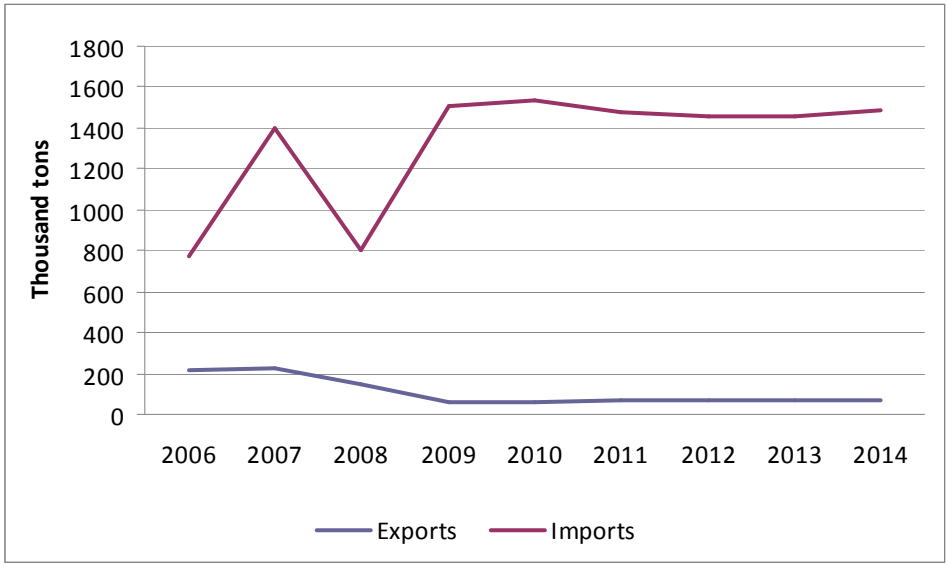


Figure 37: Wheat imports and exports of South Africa for 2006 – 2014
Source: BFAP, 2009

Import parity is the price that a purchaser pays or can expect to pay for an imported good. It is the cost insurance and freight price which includes the import price plus tariff plus transport cost to the purchaser's location (Deardorrf, 2010). The import parity changes along with the wheat prices on a daily basis. Table 8 indicates the import parity for 18 March 2010 as an example. Wheat is imported from the United States, Argentina, Germany and Canada with each country's import price to South Africa uniquely calculated for that country. In this case the wheat from Germany is the cheapest to import. Wheat is imported from the United States, Argentina, Germany and Canada with each country's import price to South Africa uniquely calculated for that country. Import parity is reached when there is an over demand for wheat and the supply is low - then

prices will rise until it reaches international price levels where a processor will be tempted to rather import wheat than buy it domestically as the costs to import it are lower.

Table 8: Import parity of wheat (VAT excluded) on 18 March 2010

	US HRW	US DNS	Argentine Trigo Pan	EU Germany B quality	Canada CWRS
International FOB prices	206.00	263.00	210.00	176.00	273.00
Freight Rates	54.00	54.00	43.00	45.00	61.00
Insurance (0.3% of OFB)	0.62	0.79	0.63	0.53	0.82
1. Cost, of Insurance and freight $/T	260.62	317.79	253.63	221.53	334.82
Exchange rate	7.37	7.37	7.37	7.37	7.37
2. Cost insurance and freight R/T	1920.33	2341.57	1868.82	1632.30	2467.05
Financing cost	16.57	20.21	16.13	14.09	21.29
3. Cost, Insurance, Freight and Financing R/T	1936.90	2361.78	1884.95	1646.39	2488.34
Discharging cost					
3.1 Cape Town	135.00	135.00	135.00	135.00	135.00
3.2 Durban	112.00	112.00	112.00	112.00	112.00
Import Tariff on wheat	0.00	0.00	0.00	0.00	0.00
4. Free on rail R/T					
4.1 Cape Town	2071.90	2496.78	2019.95	1781.39	2623.34
4.2 Durban	2048.90	2473.78	1996.95	1758.39	2600.34
Railage cost					
Durban to Randfontein	254.00	254.00	254.00	254.00	254.00
5. Delivered - Durban to Randfontein R/T	2302.90	2727.78	2250.95	2012.39	2854.34

Source: SAGIS, 2010b

Export parity is the price that a producer receives or can expect to receive if the product is exported, equal to the free on board, which is the price minus the costs of getting the product from the farm or factory to the border (Deardorff, 2010). As in the import parity's case the export parity also changes on a daily basis.

Table 9 indicates the export parity on 18 March 2010 as an example. In

Table 9 the wheat export parity price is R916.70 for the United States. Export parity price is calculated on need and may vary according to different needs of the buyer. Export parity is reached when there is an over supply of wheat relative to demand. Then prices will fall until it reaches international price levels where a producer will be tempted to rather export wheat than sell it domestically if export prices are higher. . This will usually be during the harvest months when the supply of wheat is high. The wheat harvesting months are between November and December in South Africa.

Table 9: Export parity of wheat on 18 March 2010

	US HRW Wheat Gulf May 10
FOB Gulf value ($/t)	201.43
Difference in quality and locality of SA Wheat: Less 10% of FOB value	90%
SA fob price ($/t)	181.29
Exchange rate (R/$)	7.3874
FOB Gulf value (R/t)	1339.26
Financing (Prime rate 10.5% - 30 days) (R/t)	11.56
Railage: Randfontein - Durban Harbour	254
Loading Costs (R/t)	112
Export realisation (R/t): Durban Harbour	**961.701**

Source: SAGIS, 2010c

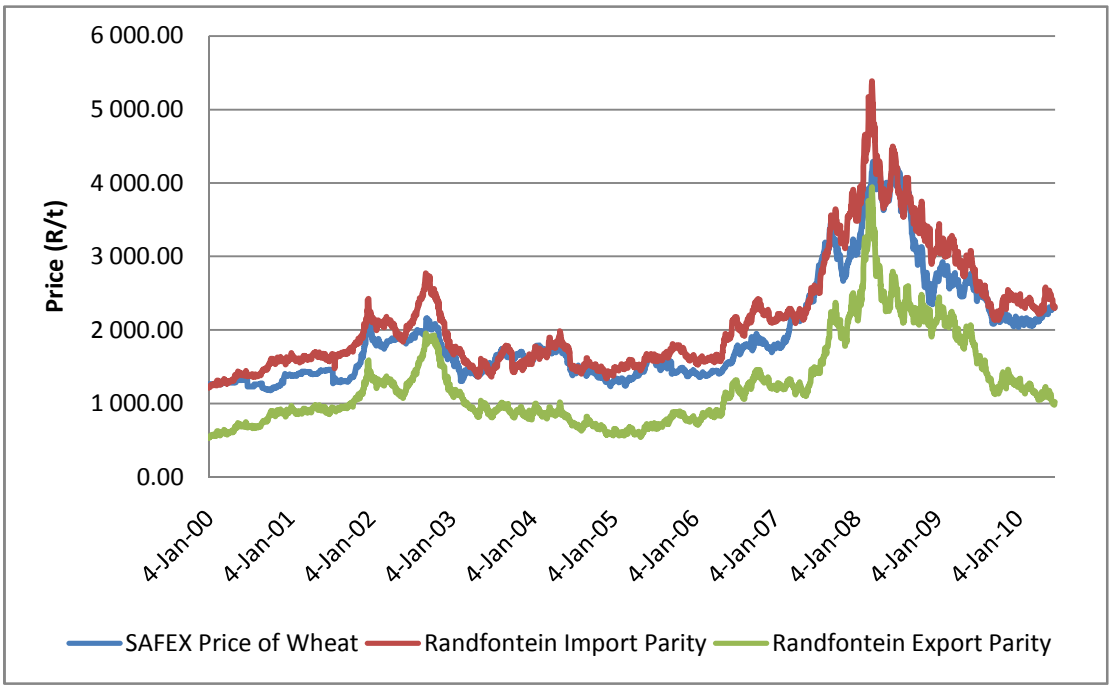


Figure 38: Wheat SAFEX price with import and export parities at Randfontein from 2000 to 2010
Source: Grain SA, 2010

Figure 38 indicates the SAFEX price of wheat along with the import and export parity price bands of from 2000 to 2010. In this figure it is clear that the domestic prices are closely linked to the import parity prices rather than export parity indicating that South Africa is a main importer of wheat. If the domestic price breaks through the import parity band then wheat processors will rather import wheat than buy is domestically since it is

cheaper to import. When this occurs it is important to protect the processors against the international market to prevent international shocks and volatilities.

3.3.5 PRICE VOLATILITY

In 1995 grain marketing in South Africa was deregulated in terms of interventions relating to price determination. The market for agricultural derivatives was established to provide market participants with a price risk management facility as well as a price determination mechanism without distorting economic principles. Wheat traders who act on behalf of clients for a fixed fee perform an important function in a free market. These traders take positions (forward buying and selling), assume market risks, establish the value of wheat and provide the real cash market for wheat (NAMC, 2004).

According to the NAMC's Quarterly Food Price Monitor report (November 2009), world prices for most soft commodities increased by approximately 20 percent from November 2008 to November 2009 as a result of the world financial crisis. A depreciation of the US Dollar, higher crude oil prices and a strong demand from Asian markets and bio-fuel markets in the US and Europe contributed to this increase. These world-price increases were however not fully transmitted into South African markets due to the appreciation of the Rand relative to the US Dollar during that period. Between March 2008 and December 2008 domestic wheat prices decreased by 83 percent in the South African market. Between January and April 2009, the price of both wheat and maize products came down – just 0.7 percent in the case of wheat products, despite the 36 percent decrease in the price of wheat itself between April 2008 and April 2009 (Knowler, 2009). The prices of wheat between January 2009 and January 2010 dropped by 24.6 percent, translating into a decrease of 4.9 percent of wheat products in urban areas, whereas rural prices were 1.6 percent down (NAMC, 2010).

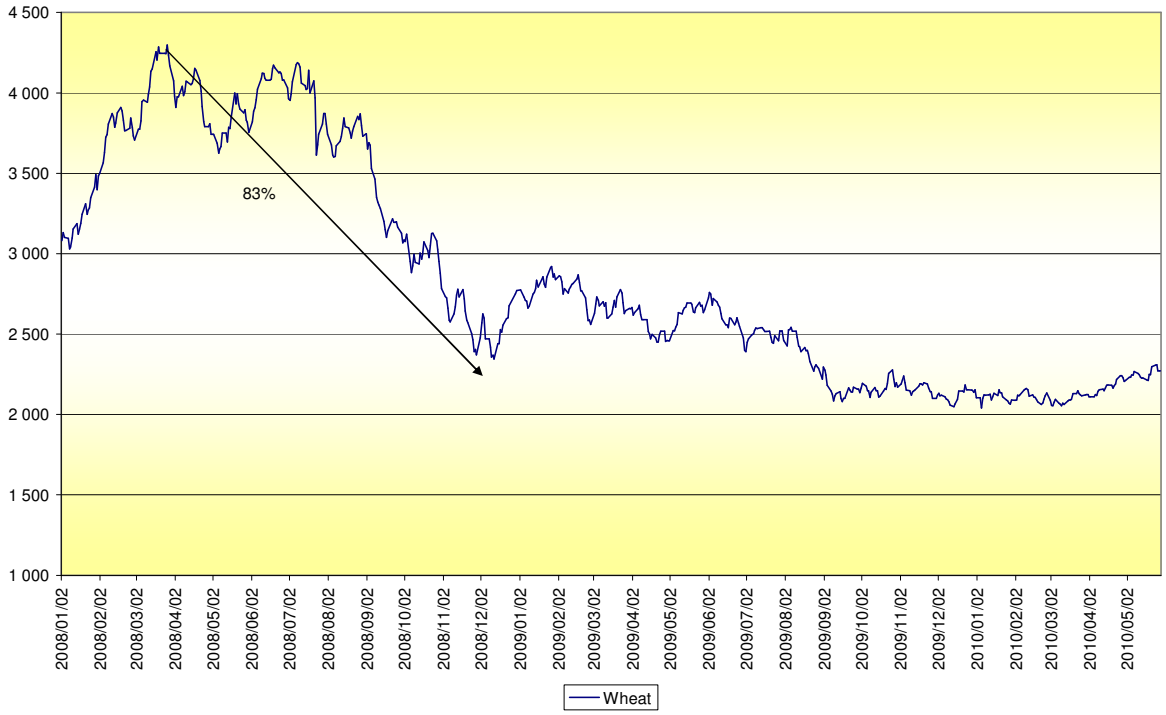


Figure 39: Wheat spot prices, Jan 2008-May 2010
Source: GrainSA, 2010.

Prices of agricultural commodities and "volatility" have been a significant concern since the drastic maize price changes occurred in South Africa during the 2001/02-marketing season, also spilling over into the wheat market. They have been in the spotlight again since agricultural commodity prices reached their peak in late 2007 and early 2008. The problem of price volatility is not new. The issue of how to address the discontinuity of supply in the face of continued demand has been debated for ages. In addition, volatility discussions nowadays overlap with discussions of greater uncertainty in a rapidly changing economic and natural environment and the structural economic changes that occurred during the recent worldwide economic recession.

The prices of agricultural commodities vary more than many other commodity prices (Alexandratos, 2009). Prices could rise, for example by 50 percent and then drop in a short time period. The structure of the world cereal markets is also quite thin as only a small proportion of world cereal production end up on the world market as a large portion of the produced cereal is consumed in the domestic market (FAO, 2008). Only 17 percent of the wheat production and 7 percent of the rice production end up on the world market (FAO, 2008). Thin markets react easily to the changes in global supply and demand (Alexandratos, 2009). The European Commission (2009) published a report which focussed on historical price volatility and how it changed over time. They found that wheat volatility has had an increasing trend over the period between 1980 and 2009, ranging between 30 percent and 73 percent. By observing the evolution since 1980, the data can be divided into four distinct intervals. During the first decade (1980 – 1990) volatility was decreasing while during the

second decade it had an increasing trend. Between 2001 and 2006 the trend in wheat volatility was relatively stable although at a level that was higher than in the past. Since May 2006 a dramatic increase can be observed.

The report published by the European Commission (2009) further stated that volatility can also fluctuate in any given period. For wheat two peaks can be observed before the period of price hikes of 2007/8. The first one occurred in June 1988 when historical volatility reached 62.5 percent, the second one in April 1996 when it reached 50 percent. In 1988 and 1996, prices soared due to a shortfall in production. Another additional reason for the peak in spring 1996 may have been speculation on futures contracts that took place in Chicago resulting in wheat price spike. Analyses of other commodities share similarities with the trends observed in wheat volatility. Although increased volatility can occur in any given period, actual peaks differ on the basis of the commodity and developments of their fundamentals. Commodities traded on European exchanges, although smaller in terms of volume, were not shielded from increased volatility.

In 2008, many articles were published about the food crisis, for example Abbot *et al*. (2008), Alexandratos (2008), Baltzer *et al*.(2008), Heady and Fan (2008) and Trostle (2008), to name but a few. None of the authors were able to identify a single factor which caused the rapid rise in cereal prices. Some factors identified have influenced structural changes in demand and supply for decades and other factors have affected food prices in the near run and some have been only sudden shocks (Trostle, 2008). Abbot *et al*. (2008) identified three broad sets of forces driving food price increases:

- Global changes in production and consumption of the key commodities
- The depreciation of the dollar, and
- Growth in the production of biofuels.

Heady and Fan (2008) have built a model which explains the principal causes and the main causal mechanism of the 2007/08 food crisis. Many factors are commodity-specific, some factors are highly significant and some less. In Figure 40 the so-called less convincing factors are illustrated with dashed lines. The decline of the dollar and the oil price are in the same box because they are both universal factors and because they may be causally related to each other.

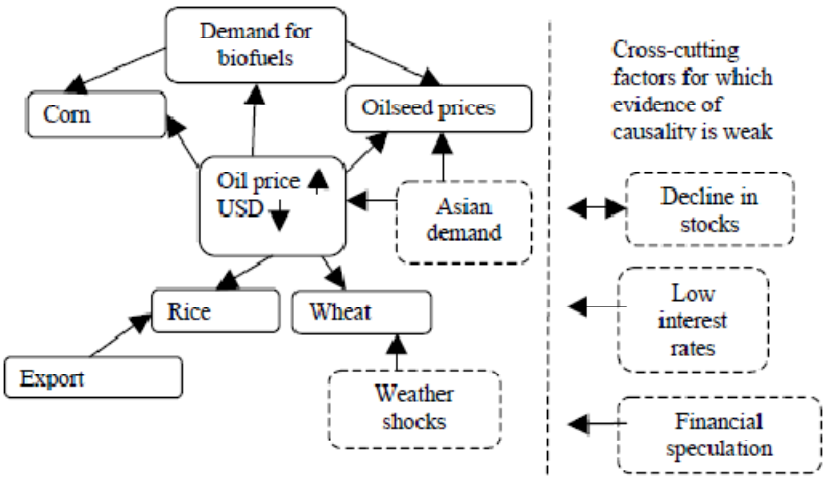


Figure 40: A model of the principal causes of the crisis
Source: Heady & Fan, 2008.

3.3.6 RELATIONSHIP BETWEEN PRICE VOLATILITY AND RISK

Before discussing price volatility, it is necessary to understand what volatility is and how it is related to risk. According to Hull, *risk* permits the assignment of probabilities to the different outcomes, and *volatility* is linked to risk in that it provides a measure of the possible variation or movement in a particular economic variable or some function of that variable, an example being a growth rate (Hull, 2006).

Volatility provides a measure of the possible variation or movement in a particular economic variable. It provides a measure that describes the tendency of a commodity, for example the wheat and maize markets, to move either up or down and to what extent the anticipated move could be. In essence it is a fear factor. If the price jumps by large amounts in a short space of time then the volatility of the market will be high. If the market movement is small, steady and predictable then the volatility will be low. Lack of predictability and uncertainty associated with increased volatility may influence both producers and consumers. High volatility may limit the ability of consumers (processors) to secure supplies and control input costs.

Two measures of volatility are used by European Commission (2009). These are:

- Historical (realised) volatility, based on observed (realised) movements of price over an historical period. Historical volatility tells us how volatile an asset has been in the past. It represents past price movements and reflects the resolution of supply and demand factors.
- Implicit volatility. Implicit volatility is the markets' view on how volatile an asset will be in the future. It represents the market's expectation of how much the price of a commodity is likely to move and tends to be more responsive to current market conditions.

Historical volatility

Historical volatility is a statistical measure of the volatility of a futures contract, security, or other instrument over a specified number of past trading days. www.cftc.gov/educationcenter/glossary/glossary_h.html. It is an indication of past volatility in the market place. Historical volatility is calculated as the annualized standard deviation of the first difference in the logarithmic values of nearby futures settlement prices. Mathematically,

$$Volatility = STDEV_{Day1}^{DayN}\left(LN\frac{SettlePx\ T}{SettlePx\ T-1}\right)*\sqrt{252}$$

As volatility is usually described in annualized terms, a factor of square root of 252 (estimated number of trade days in a year) are used to annualize the historical volatility. Table 10 shows the historical volatility of the wheat contract traded on the CME.

Table 10: Historical volatility of the wheat contract traded on CME (percentage)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
2000	16.9	23	24.6	19	22.7	26.6	16.8	22.4	21.7	19.2	18.9	18.4	20.8
2001	18.6	18.5	24.9	21.2	21.6	22	26.8	19.8	23.2	21.1	15.9	19.8	22
2002	20.4	15.6	22.0	16.6	22.2	27.7	24.4	22.6	41.1	41.7	28.8	25.6	25.8
2003	27.9	23.8	23.6	24.5	37.4	30	27.2	23.8	22.9	34.6	40.1	28	26.8
2004	27.2	28.9	37.1	30.1	34.2	22.3	24.4	27.2	29.2	21	22.1	19.6	26.9
2005	21.3	32.8	30.1	21.4	33.2	25	28.4	20	20.3	18.0	13.3	21	23.7
2006	22.4	25.4	26.1	21.7	32.9	27.8	43.2	29.3	33.4	45.8	26	29.9	30.4
2007	38	25.2	21.3	37.5	32.3	40	30.4	26.4	38.6	38.2	30.1	34.3	32.7
2008	35.1	73.4	72.8	44.8	30.0	52.3	31.4	63.5	50.8	60.4	50.6	41.6	50.6
2009	55.3	28.9	51.6	36.0	25.9	35.8	37.3	28.8	44.3	44.4	37.4	29.6	37.9
2010	33.4	36.2	27										32.2
Mean	28.1	25.5	26.3	24.0	29.6	27.7	28.1	28.3	31.2	33.3	27.3	23.2	
High	55.3	73.4	72.8	50	39	62.5	48.1	63.5	50.8	60.4	50.6	41.6	
Low	16.9	15.6	22	16.6	21.6	22	16.8	19.8	21.7	18	13.3	18.4	

Source: CME (2010)

Table 11 shows the volatile nature of the South African wheat contract traded on SAFEX.

Table 11: Historical volatility of the wheat contract traded on SAFEX (percentage)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
2000	3.8	9.7	11.5	8.2	48.5	19.3	23.8	7.7	7.9	24.9	22.5	6.6	16.2
2001	22.7	30.1	25.1	16.9	21.2	18.3	30	26	16.9	27.5	30	34.6	24.9
2002	26.3	20.1	19.1	13	12	13.2	17.6	21.8	32.9	18.5	21.4	35	20.9
2003	29.6	44.5	31.9	24.5	26.3	23.4	22.5	23.2	14.8	20.9	19.4	30	25.9
2004	26.1	30.2	19.9	16.1	18.9	25.1	53.4	19.9	26.9	15	21.6	22.7	24.7
2005	15.3	20.6	19.2	17.9	19.7	27.4	19.1	32,5	47.8	22	20.6	30.4	23.6
2006	12.9	16.1	9.9	12.7	13.3	24.8	31.9	12.4	47.8	29.6	22	24.8	21.5
2007	17.8	24.6	28.8	19.5	23	36.3	25	15.4	44.7	23.8	24.2	33.1	26.4
2008	31.2	26.5	28	26.3	30.0	18.1	50.5	25.1	29.6	42.1	35.2	47.1	32.7
2009	28.1	25.5	32.6	23.9	21.9	29.9	22.5	29.5	29.7	28.3	20.2	18.4	25.9
2010	26.1	15.7	16.8										19.5
Mean	21.8	24.0	22.1	17.9	22.8	23.6	29.6	20.1	29.9	25.2	23.7	28.3	
High	31.2	30.2	32.6	26.3	48.5	36.3	53.4	32.5	47.8	42.1	35.2	47.1	
Low	3.8	9.7	9.9	8.2	12	18.1	17.6	7.7	7.9	15	19.4	6.6	

Source: Based on calculations from GrainSA data (2010).

Interesting to note is the fact that the wheat traded on SAFEX is less volatile than the wheat traded on the CME. Furthermore, during 2008 and 2009 (the world financial crisis) the volatility of the wheat contract traded on SAFEX was less than the volatility of the wheat contract traded on the CME. A possible explanation can be that the South African market has a smaller portion of funds traded the contract compared to the CME. Another interesting fact to observe is the large changes in volatility experienced from month to month. Take the year 2004 as an example. The volatility changed from June to July by 28,3 percent and from July to August by 33.5 percent. This large monthly changes makes it very difficult for option writers to maintain a delta neutral position on their books.

Implicit volatility

Implied volatility represents the market's expectation of how much the price of a commodity is likely to move in the future. It is called "implied" because, by dealing with future events, it cannot be observed, and can only be inferred from the prices of option contracts. Since it is such an unknown, a question easily asked is: Does implied volatility matter? Prices of derivative commodities are determined by underlying expectations and uncertainties about such expectations, pertinent to the market and the commodity. Hence, implied volatility, as reflected or inferred by the prices of derivative contracts, is an important component of the price discovery process and is a barometer as to how traders expect prices to evolve in the shorter term (FAO, 2009).

According to the FAO Food Outlook Bulletin (2009) the implied volatilities for wheat and maize have increased steadily over the past two decades. Although implied volatility is much higher than previous decades, it seems that the implied volatility of wheat and maize may have stabilized and might have reached a turning point. At the peak of the turmoil in international wheat markets, implied volatility for wheat climbed to 55 percent, but have retraced to lower levels and stood at 35 percent during November 2009. These percentages are a measure of the deviation in the futures price (six months ahead) from underlying expected values. Under reasonable assumptions, one can say 'the market estimates with *68 percent certainty* that prices will rise or fall by 35 percent for wheat and the likelihood that prices will exceed their current values by more than 50 percent in six months time is perceived to have a probability of around 2 percent, in other words quite unlikely.

Price variability is an important component of the grain farmers' and a miller's planning because of its impact on farm and miller profitability. Knowledge about price volatility and the factors affecting it will benefit derivative instrument users and will aid in price risk management. South Africa shows high levels of both implied option volatility and price volatility. Meyer *et al* (2006) state that the equilibrium price in the smaller market can be estimated as a function of the equilibrium price in the dominant market, the exchange rate and the transaction costs. Thus when trade occurs between markets, the difference in price is equal to the transaction costs.

Jordaan, et al (2007) conducted a study where they measured the conditional volatility in the daily spot prices of wheat traded on SAFEX. The volatility in the prices of wheat and soybeans was found to be constant over time; hence the standard error of the ARIMA process was used as the measure of volatility in the prices of these two crops. When comparing the medians of the conditional standard deviations in the prices of white maize, yellow maize and sunflower seed to the constant volatilities of wheat and soybeans, the price of white maize was found to be the most volatile, followed by yellow maize, sunflower seed, soybeans, and wheat respectively. These results suggest that the more risk-averse farmers will more likely produce wheat, sunflower seed and to a lesser extent soybeans, while maize producers are expected to utilise forward pricing methods, especially put options, at a high level to manage the higher volatility.

3.3.7 PRICE AND PRICE CYCLES

Figure 41 shows the production price of wheat that increased dramatically from 2006 to 2009. This can be due to the input cost increases of fuel, fertilizers, labour, etc. The drop in fertilizer prices in 2009 resulted in input costs decreasing. Figure 41 indicates the decrease in producer prices as a result of the decrease in input costs (NDA, 2010).

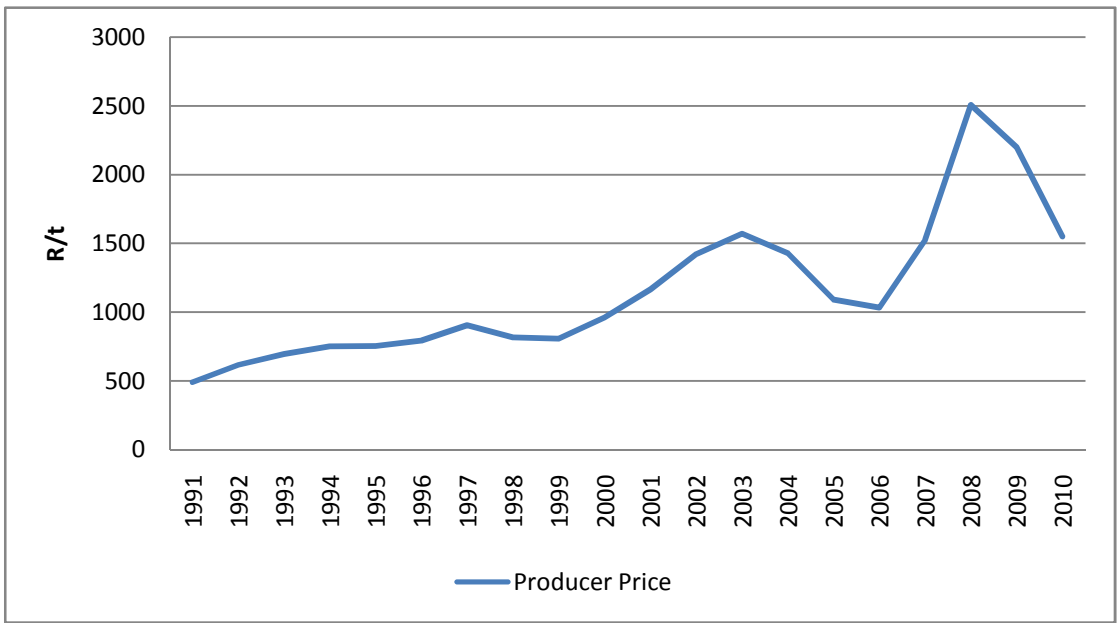


Figure 41: Producer price of wheat 1991 – 2010
Source: NDA, 2010

Figure 42 below indicates a dramatic drop in the prices for wheat between May and September of 2009 it dropped from R2 700/ton in May 2009 to R2 200/ton in September where it stayed with some fluctuation (SAFEX, 2010). Between the period of 2008 and 2010 the price of wheat was under the production price. This caused wheat production to be unsustainable with lower wheat areas planted and decreased production as shown in Figure 34. Processors moved to imported wheat that supplemented the short fall in the domestic markets in delivering sufficient quantities. Producers need to be protected against the international competition at import parity prices especially at times with high producer prices and low SAFEX wheat prices.

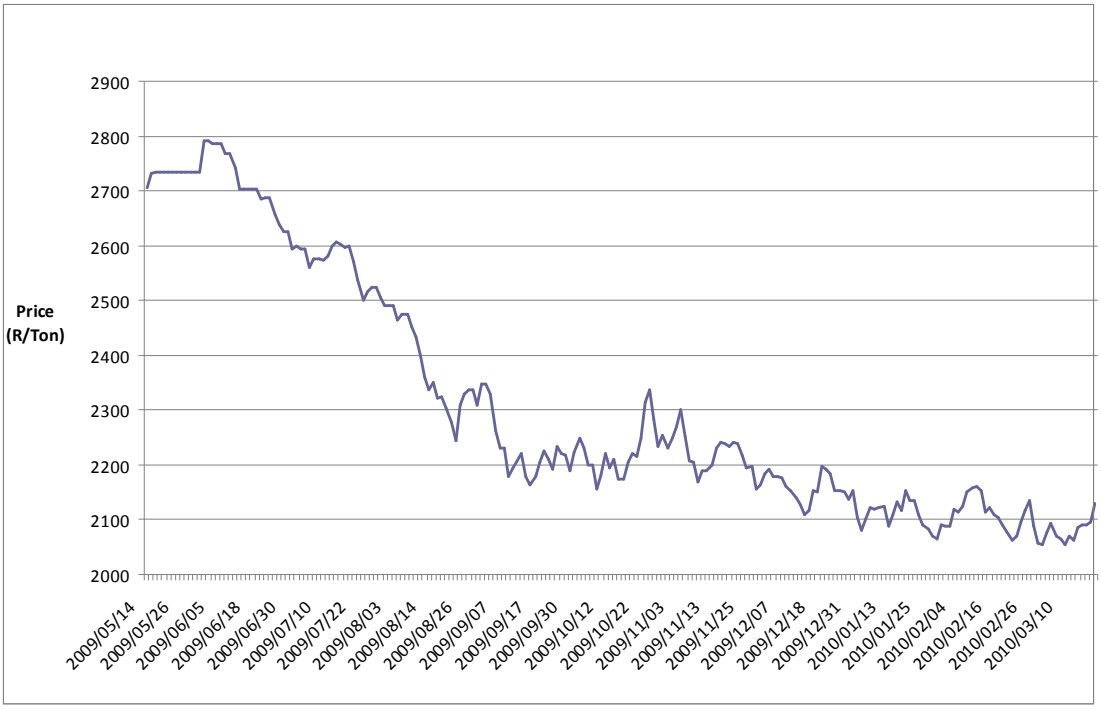


Figure 42: SAFEX prices of wheat from May 2009 to March 2010
Source: SAFEX, 2010

Wheat prices experienced a large peak in the first quarter of 2008 as seen in the Figure 42 above. Local wheat prices then declined by following the decrease in world wheat prices seen in Figure 24. The price is not expected to recover in 2010 since import parities continue to be low with a strengthening of the exchange rate and no recovery in the world prices.

3.3.8 THE SOUTH AFRICAN WHEAT SUPPLY CHAIN

Before 1991 the Wheat Board controlled prices and almost all of the wheat marketing chain, but in 1991, with the abolishment of the Wheat Board, the milling and baking industries were deregulated. This change in modus operandi in the wheat industry resulted in more direct marketing on a regular basis between producers and millers, processors and bakers. The deregulation of the industry opened the door for large buyers and traders to play an important role in securing specific quantities and cultivars for their clients such as millers and bakers. There has also been a preference by some large millers and bakers to import their own wheat from countries like Argentina, Australia, Germany and the United States of America (USA) (NAMC, 2009).

Of the wheat produced domestically almost all is used for human consumption and less than 1 percent is used for animal feed. Domestic consumption includes also on-farm usage for instance seed and other uses but this makes a very small part of consumption. Wheat is purchased by the manufacturers of flour and other wheat products from the producers, traders and silo owners. The manufacturers produce mostly branded products of

which the majority is sold in the large supermarkets. The large processors tend to be found located near the large metropolitan markets such as Johannesburg, Cape Town and Durban. Some of the large manufacturers also have industrial business units which supply in bulk, wheat products to other food sector and hospitality industries (NAMC, 2009).

The flour and wheaten products industry is currently experiencing some challenges like the big millers and producers of wheaten products such as Pioneer Foods, Tiger Brands, Foodcorp and Premier Foods being involved in a countrywide cartel. The uncompetitive behaviour of the firms was investigated by the Competition Commission. The Commission found that these large wheat millers and bakers of bread were not only fixing prices but also dividing markets between them. This has been rather unfortunate for the industry and the culprits have been fined significant amounts in an attempt to curb such coordinated and anti competitive behaviour (Competition Tribunal, 2009).

The South African wheat-to-bread value chain consists of a numerous stages from research and technology all the way to the consumer who normally consumes wheat in a processed form as indicated in Figure 43. Each step in the chain adds value to the wheat produced by the farmer. The producer and the rest of the industry are supported by the South African Grain Information Service (SAGIS) which provides information on all grains including wheat and manages databases for research. Another organisation that adds value to the industry is the Southern African Grain Laboratory (SAGL) which ensures that laboratory work and research for the whole value chain continued after the Wheat and Maize Boards closed. Funding for research in the wheat industry is gained by the Winter Cereals Trust which administers a levy on wheat sold by producers and importers. Therefore the main objective of the Trust is to perform or financially support technical, scientific and industrial research of the winter cereals in South Africa (NAMC, 2009).

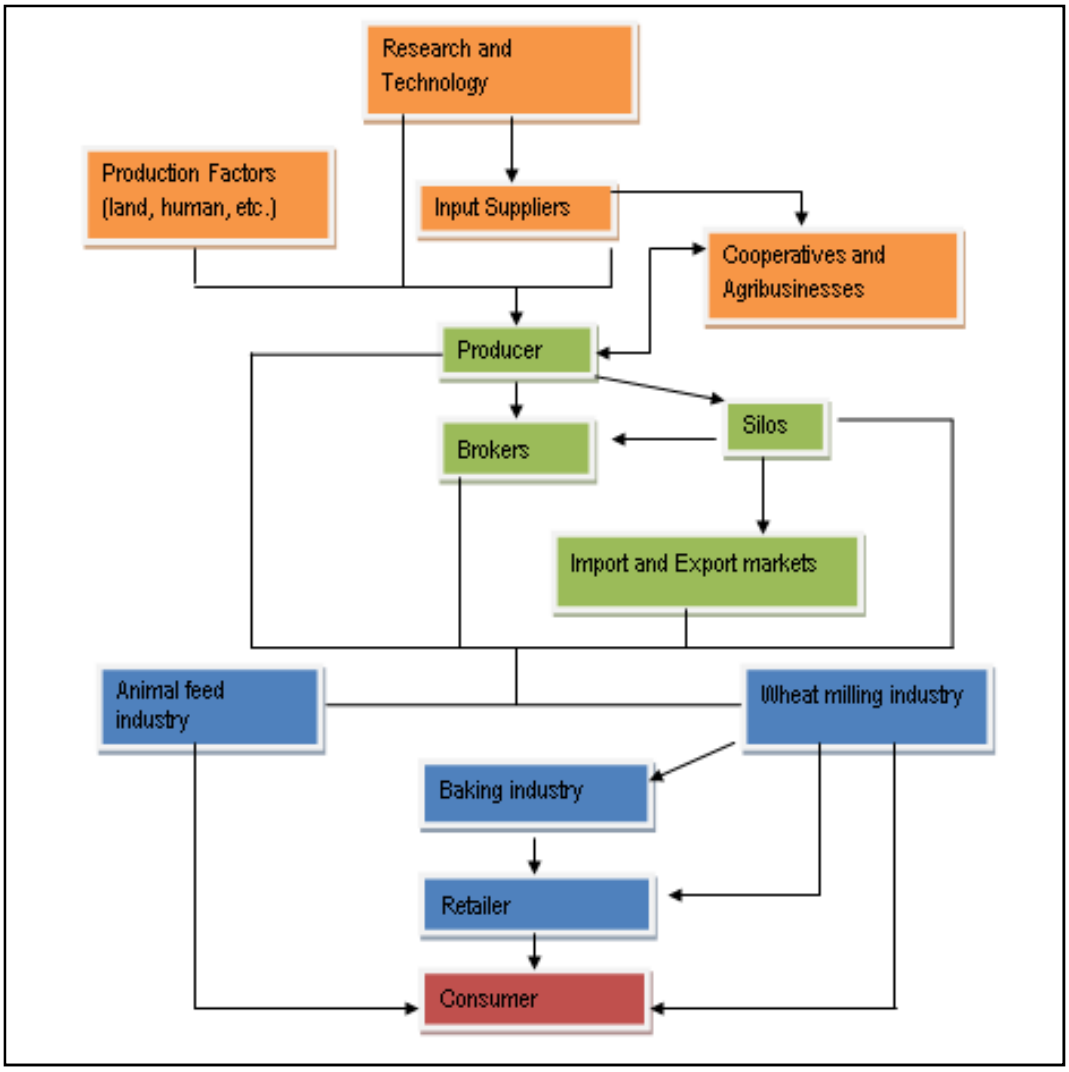


Figure 43: **The Wheat industry value chain**

Source: NAMC, 2009

Once wheat is harvested by the farmers, it is delivered to a milling company. The price of wheat delivered is known as the mill door price and is based on the South African Futures Exchange (SAFEX) price plus transport, handling, and storage costs. To finally get to the cost of producing flour, the cost of milling and the cost of wheat are added. But the rate of extraction from the wheat to flour is different between white and brown bread flour. According to the NAMC (2009), it is stated that "the extraction rate from one ton of wheat is 0.87 tons of brown bread flour is extracted and 0.76 tons of white bread flour extracted. Similarly, one ton of brown bread flour can produce 2 278 standard 700g loaves of brown bread while a ton of white bread flour produces 2 135 loaves." This therefore indicates that more wheat is required for white bread meal than for brown bread meal, hence farmers gain a greater eventual share in the retail price of white bread than from the retail price of brown bread (NAMC, 2006). Finally to gain the cost of producing one loaf of bread the cost of baking needs to be added to the cost of flour. The cost of baking includes energy, packaging, raw materials (yeast), labour, packaging, distribution and all the overheads.

Table 12 below indicate the shares each of the nodes have in the end retail price of bread. The nodes being various actors or processors in the value chain such as the producers, logistics, millers, bakers, retailers and finally government. These sub-sector's shares in the retail price of a loaf of bread within the wheat to bread value chain is just the difference between the sectors input in terms of wheat, flour and bread and their output price of flour and bread. This is taken as a percentage of the retail price of bread (NAMC, 2009).

Table 12 further indicates that the producer share in the retail price of wheat fell from 33.3 percent in the 1990/91 year to 17.9 percent in the 1998/99 year. The producer share in the retail price of bread continued to remain below or equal to the 20 percent mark from 1999 through to 2006, but managed to break out to 25.9 percent in 2007. This increase in 2007 according to the NAMC (2009) was due "high global wheat prices and the local supply and demand situation." In the case of brown bread the wheat producers share in the price followed more or less that of the white bread trend.

Table 12: Share trends of the various nodes in the retail price of bread

White bread (%)	Year							
Node	1990/91	1996/97	1998/99	2002	2004	2005	2006	2007
Producer	33.3	24.2	17.9	20.2	18.1	15.8	17.9	25.9
Logistics	6.7	3.3	4.4	3.5	2.6	2.9	3	2.9
Miller	16.7	10.8	9.8	10.6	6.9	7.7	7	6.5
Baker	40	42	43.9	41.7	48.4	49.5	47.1	39.7
Retailer	3.3	7.4	11.8	11.7	11.8	11.8	12.7	12.7
Government	0	12.3	12.2	12.2	12.2	12.3	12.3	12.3
Total	100	100	100	100	100	100	100	100
Brown bread (%)	Year							
Node	1990/91	1996/97	1998/99	2002	2004	2005	2006	2007
Producer	32.4	23.4	16.7	16.9	18.5	16.1	16.6	24
Logistics	6.7	3.8	4.1	3	2.7	2.9	2.8	2.6
Miller	21	15.7	12.6	8	6.5	8.8	6.2	7
Baker	36.2	46	46.3	53.3	54.1	56.8	54.9	46.9
Retailer	3.8	11.1	20.4	18.8	18.1	15.4	19.4	19.4
Government	0	0	0	0	0	0	0	0
Total	100	100	100	100	100	100	100	100

Source: NAMC, 2009

The share of logistics which includes the transport and storage of wheat, in the retail price of bread has dropped according to Table 12 below. Logistics also includes the grain traders who have taken over many of the former Wheat Board's activities in the deregulated market that now occurs. This means that traders buy from producers, provide market information and advice to producers and millers, they also undertake logistical, administrative functions, financing and hedging against price fluctuations (NAMC, 2009). The downward movement as shown in Table 12 was from 6.7 percent in 1991 to 2.9 percent in 2007 for white bread and relatively the same drop can be seen in brown bread. According to the NAMC (2009) this decline is thought to be the result of an increase in the wheat producer's share and the bakers share.

The share of the milling node has dropped significantly in especially in brown bread, from 21 percent to 7 percent. For white bread the milling node's share has dropped from 16.7 percent to 6.5 percent which occurred soon after the deregulation of the market between 1991 and 1996/97, but the drop in brown bread was more spread out (NAMC, 2009).

Table 12 indicates the baker's share has been increasing steadily from 1990/91 to 2005 where in both white and brown bread it reached a peak of 49.5 percent and 56.8 percent respectively this was due to the fact that bakers paid less for flour during this period (NAMC, 2009).

Retailers being the final sellers of bread to the consumer benefited from the deregulated market as no price controls being imposed. This can be seen in table 1 where from 1990/91 to 2007 the retail sector's share in white bread increased from 3.3 percent to 12.7 percent and in brown bread from 3.8 percent to 19.4 percent. Bread as a product has a very low price elasticity of demand which indicates that prices may vary but that would not influence by too much the quantity demanded. Therefore the retail price of bread would fluctuate according to the market but the quantity demanded would remain relatively the same (NAMC, 2009).

The Government also has a share in the value chain but only when it comes to white bread, this share is 12.3 percent which is the Value Added Tax (VAT) imposed only on white bread since 1991. As shown in Table 12 Government has a 0 percent share in brown bread as it is seen as a basic food, but white bread has the VAT incorporated into the price. Retailers are therefore able to take a higher margin on brown bread than they can on white (NAMC, 2009).

3.3.9 FOOD SECURITY

Food security can be a global population issue or a single household's issue; it is defined to have access to sufficient and affordable food for everyone (One World, 2009). A lack in food security can be caused by either no availability of food or non-affordability of that food even if it is available. The latter is especially true for poverty struck regions. One of the main consequences of hunger is that livelihoods are put at risk by the inability to work. With high unemployment rates, poverty increases and even less food can be obtained (One World, 2009).

There are three direct negative influences on food security that prospered in the absence of firm governance. First is the lack of investment in the agricultural sector in the developing world, second are the improper rules for trade and investment between rich and poor countries, and thirdly is the global acceptance of severe inequality which permits the diversion of valuable food resources. This is especially the case in the production

of bio-fuels and animal feed that accounts for over 5 percent and 33 percent respectively of the world's grain consumption (One World, 2009).

Commercial consumption of wheat is consistent at around the 2.8 million tons, commercial production and closing stocks vary from season to season depending on the weather conditions (NDA, 2009).

Ideas for the proposal of food secured in South Africa (SAAPA, 2009) are:

- Bio-fuels should not be produces from food crops.
- If speculation on the JSE Securities Exchange (SAFEX) influences the food market then it should be limited.
- South Africa should strive to become a preferred food aid supplier to the World Food Programme especially in our African region
- Markets must be left to stable by itself if prices are driven high due to demand
- The World Trade Organization must strive to finalise the DOHA Round to obtain a free and fair trade environment for agricultural commodities. Since South Africa is a wheat importer; free trade will result in greater stability of supply and lower price volatility for wheat processors. Wheat producers will have to compete on an international basis considering international price factors and not only domestic price factors. .

The Southern African Development Community (SADC) is in the process of creating the Regional Food Reserve Facility. The main purpose of this food reserve is to prevent, anticipate and prepare for any impacts and shocks to food security in a way that will minimize disruptions in the long-term agricultural growth. The main activities of the Food Reserve Facility (SADC, 2010) are:

- Coordination of National Stocks (Collective Food Stockpiling)
- Strengthening Information systems and building capacity for forecasting
- Creating an Disaster Preparedness Framework

3.3.10 MILLING AND BAKING INDUSTRY

The Figure 44 below illustrates a simplified market value chain of the milling and baking industry (as opposed to the more detailed supply chain presented in Figure 43).

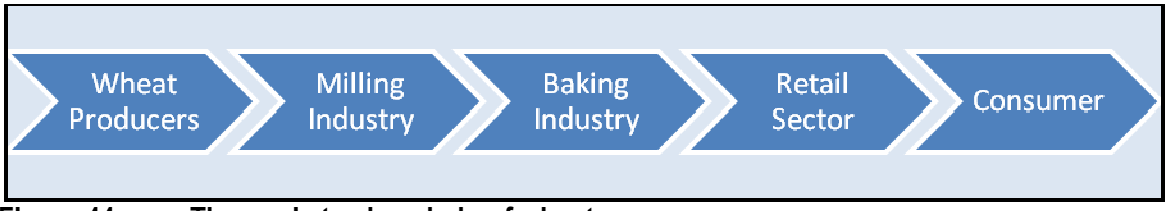


Figure 44: The market value chain of wheat

Source**:** NDA, 2006

Table 13 indicates the tonnage that was milled in South Africa from 1998 to 2009 (NCM, 2009). There is a definite annual increase. The milling industry produces on average 2.5 million tons of milled wheat annually which is converted into flour. The milled products include white bread flour, brown bread flour, whole-wheat flour, cake flour, industrial flour and self raising flour. The industry sells milled wheat to wholesalers, industrial users and the BLNS (Botswana, Lesotho, Namibia and Swaziland) countries. During milling about 67 percent of flour and meal produced is used for bread. The millers source their raw material either from the domestic market or from the international markets through imports (NDA, 2006).

Table 13: Monthly wheat milling in tons

	2009/2010	2008/2009	2007/2008	2006/2007	2005/2006	2004/2005	2003/2004	2002/2003	2001/2002	2000/2001	1999/2000	1998/1999
October	222 809	211 916	238 591	223 567	214 364	204 676	216 343	219 805	211 513	219 468	205 930	205 597
November	230 649	210 890	235 668	226 450	212 362	221 128	200 695	212 757	204 316	203 780	199 942	207 298
December		211 855	215 451	206 423	205 625	199 643	207 101	197 394	193 865	186 174	179 539	193 082
January		194 374	223 346	204 521	188 328	180 397	184 316	182 201	214 148	192 120	167 955	170 452
February		190 130	213 891	177 475	171 422	178 494	193 616	164 264	181 409	169 817	173 710	169 519
March		234 157	225 760	216 680	218 599	192 853	209 228	193 507	191 740	196 056	189 522	185 736
April		196 708	208 368	193 719	193 477	204 903	181 059	186 346	190 358	172 634	165 827	168 696
May		223 574	210 748	219 520	215 602	211 459	200 516	209 632	203 004	214 046	215 530	202 709
June		234 326	218 472	229 249	227 845	213 835	199 612	211 029	198 387	212 549	195 859	179 018
July		230 780	215 998	222 648	209 572	207 231	194 956	204 749	213 445	189 982	193 388	196 239
August		225 593	205 673	216 099	216 213	211 035	218 162	198 942	200 216	200 400	206 277	200 542
September		242 093	222 246	227 382	232 553	216 811	208 892	208 981	210 521	197 127	180 349	181 633
TOTAL	**453 458**	**2 606 397**	**2 634 210**	**2 563 734**	**2 505 962**	**2 442 462**	**2 414 495**	**2 389 607**	**2 412 921**	**2 354 152**	**2 273 827**	**2 260 520**

Source: NCM, 2009

There are five different types of baking units, namely: plant, wholesale, industrial, in-store and other bakeries. There are a large number of informal bakers that operate in non licensed premises. The bakers produce mainly bread and other products such as cakes, muffins, pizzas, etc. The plant bakeries are still popular although there are a significant number of retail-bakers, which may impact negatively on the plant bakeries. Growth in this industry took place through the establishment of franchises and in-store bakeries. The major companies are Albany, Blue Ribbon, Sasko, Sunbake and BB Cereals (NDA, 2006).The industry statistics on the major processors is unattainable since the National Chamber of Milling has discontinued with the dissemination and distribution of industry statistics until such time when the Commission has given clear guidelines regarding information sharing on an industry basis (NCM, 2010).

3.4 PORTER ANALYSIS OF THE WHEAT PROCESSING INDUSTRY

The Porter model is used to analyze the determinants of competitiveness in the wheat processing sector. Porter uses barriers to entry, bargaining power of suppliers and buyers and the threat of substitutes to explain the rivalry in the wheat processing industry. Figure 45 summarizes Porter's five forces of model competition.

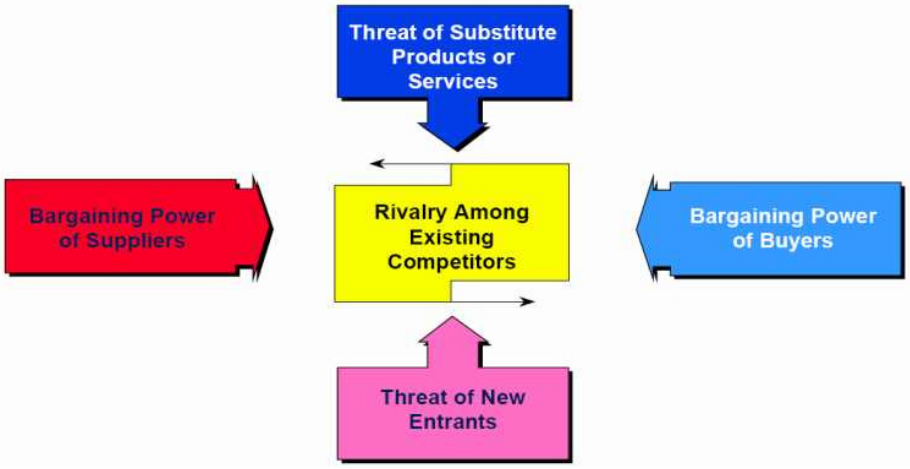


Figure 45: Porter's 5 forces model of competition
Source: Filling the Gaps, 2008

Rivalry

- Concentration and volume of competitors- If competing wheat millers are more concentrated and if the larger portion of the market share is owned by only a few large wheat millers the competitive landscape is less competitive.

- Industry growth rate and capacity utilization and expansion- A slow industry growth rate results in wheat mills fighting for market share. If a market is still growing wheat mills can easily increase revenues by expanding in the market.
- High wheat storage costs (silo's), high input costs in the wheat production and processing industries and perishability of wheat products increases rivalry in the wheat milling sector.
- Low switching costs and low levels of product differentiation increase rivalry in the wheat milling sector.
- High exit barriers, especially regarding expensive equipment bought in the wheat milling industry to run a wheat milling plant, make it pricy to abandon a particular product. .

Entry Barriers (Threat of new Entrants)

- Economies of scale- Larger wheat millers have economies of scale as the cost per unit decreases as the size of the milling plant increases or expands.
- Cost advantages- Large milling companies can bargain for better prices or discounts due to the fact that they buy more equipment or products.
- Product differentiation- A reduction in cost and economies of scale of larger wheat millers enable these companies to cut costs and invest these savings in producing differentiated products.
- Switching cost- Switching cost is the cost of switching suppliers. This is a relatively high barrier to entry as small and large millers are faced with this barrier.
- Capital requirements- Starting a wheat mill is a very capital intensive procedure and the capital requirements are frequently the strongest barrier to entry.
- Access to distribution channels- Access to distribution channels to get wheat from the farmer to the mill and to get the processed wheat form the mill to the bakeries and consumers is often hampered by high transportation costs and poor logistical management.
- Governmental policies- Governmental policies regarding health and safety, traceability, the use of GM products and other standards and policies is another barrier to enter the wheat milling industry (Quick MBA, 2007).

Bargaining power of Buyers

- Buyer concentration, volume and information- The concentration and volume of the buyers as well as the information that they have regarding a specific product often influence the power that they have to influence the demand and thus prices of milled wheat products.

- Ability to backward integrate- The ability of the buyer to buy directly from the miller instead of through supermarkets or from other sources that sell the same product at a cheaper price increases the buyer's ability to bargain.
- Availability of substitutes and product variety- The buyer's bargaining power will increase as the amount of substitutes increase but also if the variety of products available increase.
- Price sensitivity- Buyers are less sensitive to price changes in inferior or normal goods, like bread, than to price changes in luxury goods.
- Brand identification- Different brands of a variety of wheat products are available and buyers will typically choose to buy those products that satisfy their needs the best in terms of quality, quantity and price.

Bargaining power of Suppliers

- The more wheat millers there are in a certain region the higher the rivalry and the lower the bargaining power of one miller.
- Supplier's knowledge of product's value to the buyer- An increased knowledge of what the buyer requires from a specific product increases the miller's ability to bargain for higher prices.
- The bargaining power of millers decreases as soon as products become standardized.
- Threat of forward integration- Millers that deal directly with consumers have an advantage and increased bargaining power to millers that lack this.

Threat of Substitutes

- Relative price performance of substitutes and price elasticity's. As more substitutes become available the demand for the product becomes more elastic. Cheaper substitutes for certain wheat products will be preferred especially if quality are not given up on. Millers who produce wheat products cheaper will thus have a competitive advantage to those millers who cannot afford to produce wheat products more cheaply.
- Buyer propensity to substitute - The success of cheaper substitute products however does not only depend on the product itself but also on the buyer or consumer's ability and willingness to substitute the one product for the other.

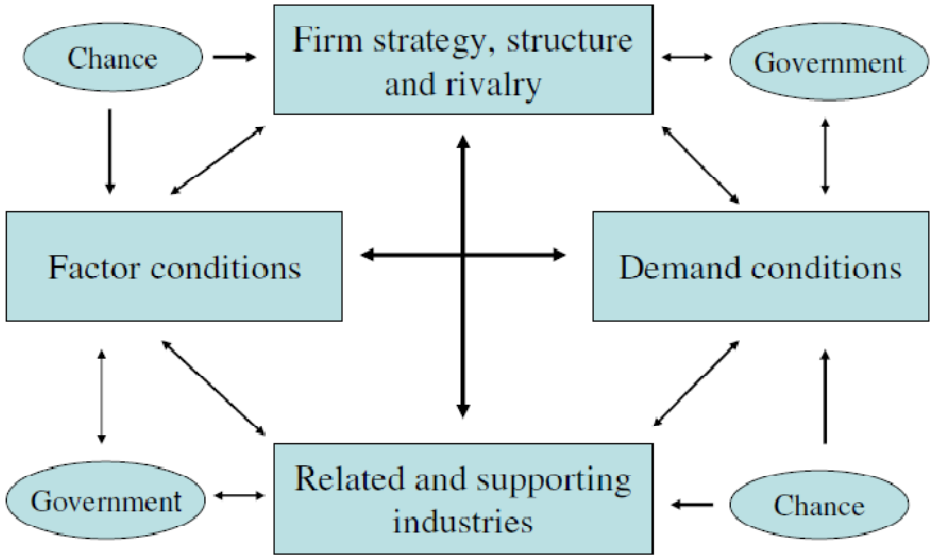


Figure 46: Porter's diamond
Source: Esterhuizen, 2006

Porter is also well known for his 'diamond model' (Figure 46) that explains the competitive strength of nations and by implication their industries. According to Porter (1990) these determinants create an environment in which companies are born into and are taught how to compete in a competitive environment. The effect of one point of Porter's diamond depends on the other points of the model; factor disadvantages will thus only lead to innovative action in industries if there is adequate competition between these industries. The Porter diamond is also a self-reinforcing system, thus high competition will lead to exclusive specialized factors being formed.

Factor Conditions

The production factors needed for a miller to be successful in the wheat milling industry includes:

- Cost of capital
- Input cost
- Water and land availability
- Productivity, cost and availability of labour
- Access to finance
- Infrastructure and operational infrastructure
- Cost and agreement on traceability
- Distance to the market

Demand Conditions

The demand conditions capture the nature and degree of demand within the nation regarding processed wheat products. These conditions are:

- Purchasing power
- Changing consumer trends
- Growth of informal market
- Size and growth of market

Related Industries

Related industries include the continuation, degree and the international competitive power of various other industries in a country that aid the wheat milling industry. The factors that influence this matter are:

- Logistics
- Quality and availability of imported and local inputs as well as reliability of input suppliers
- State of technology, training and skills development
- State of research and development and the availability of quality of information in the industry

Corporate Strategy, Structure and Rivalry

Corporate strategy, structure and rivalry entail the circumstances in the home market that influence the ways in which corporations are created to grow with proper management. Generally local wheat mills that fight for survival locally have a better chance to compete internationally.

- Relationships and networks
- Supply chain coordination
- Regulations and standards
- Level of competition
- Business behaviour
- Nature of barriers to entry
- Nature and activities of industry organizations
- Pricing strategies
- Diversification strategies

The role of Government in the model

Government's role in the Porter diamond is to act as a contender and medium to push companies to increase their goals and move to higher levels of competitive performance, thus government should:

- Encourage millers in the wheat milling industry to raise their performance by implementing strict standards.
- Create early demands for superior processed wheat products.
- Focus on unique factor formation.
- Stimulate domestic competition by restraining direct cooperation and implementing anti-competitive strategies.

The role of chance

Chance events are events that have nothing to do with current situations and that cannot be controlled or influenced by a nation, government or firms such as decreases in demand, political decisions by foreign governments, shifts exchange rates, input demands and various other factors (van Rooyen, Esterhuizen & Doyer, 1999). Chance can destroy or create new sources of competitive advantage (Esterhuizen, 2006).

3.5 CURRENT GLOBAL CHALLENGES FACED BY THE WHEAT INDUSTRY

The global wheat industry is faced with numerous challenges and issues that affect the effectiveness of the industry and the movement of wheat through the supply chain from the producer to the consumer. Listed below are challenges brought about by the recent economic crisis, challenges faced by farmers on farm level, challenges due to a changing market as well as more recent issues and challenges.

Economic challenges

- Financial crisis

The number of undernourished people is estimated at 1.02 billion (FAO, 2009), increasing up due to the recent economic crisis. Under nourishment is due to unemployment, a reduction in disposable income as well as unstable commodity prices and limited access to food. The economic crisis might also impact negatively on agricultural productivity and investment which will further hamper food security and nutrition especially in developing countries. During times of economic crises banks immediately reduce the availability of credit. This will prevent farmers and millers from obtaining loans to invest in production of agricultural products. Farmers and millers that obtained loans before the crisis will struggle to repay these loans possibly resulting in farmers

and millers possible going bankrupt. High interest rates also constrain the farmer's ability to lend money or to make decent profits to invest or reinvest in his production process. This reduction in production will result in higher dependence on imports to counter the decrease in production (Suresh, 2009).

- Exchange rate volatility

Volatility in the exchange rate poses a major threat to producers, millers, bakers and consumers of wheat internationally. As a wheat importing country, wheat prices in South Africa is highly affected by exchange rate volatility. However exchange rates not only influence the price of wheat but also have an impact on the volumes of exchange imported and exported and the destined countries.

Challenges faced on farm level

The challenges faced at farm level in the wheat industry have a direct impact on the current and future availability of quality and volumes of wheat available to the miller and bakery industry. There is a need to take notice of these issues as they impact on procurement practices of key players in the wheat value chain. .

- Global warming

Developing countries are expected to be the most affected by this phenomena as they are the least likely to adapt in time. Global warming brings about various problems such as drought and a reduction of yields, floods and hail and total crop losses because of this. Global warming can also create favourable conditions for pests and diseases which can wipe out entire crops (www.africaclimatesolution.org, 2008).

- El Niño

El Niño is a very important weather phenomenon to take into consideration as it puts global wheat production, especially producers in the southern hemisphere, under severe strain due to the dry conditions that are brought about by El Niño. These dry conditions result in sharp declines in wheat yields. El Niño can, on the other hand, also have a positive influence on wheat production, especially when its timing corresponds with the vital pollinating stage of wheat crops (CCAA, 2006).

El Niño is expected to occur once again in the 2009/10 production season. Thus it is important to note the effects of El Niño and the impact that this weather phenomenon may have on the production of wheat and thus indirectly on the wheat processing sectors, the supply of various wheat products to the consumers and the prices. El Niño may reduce or increase production in some regions and this will influence the ending stock of wheat as well as the wheat available to the processing sector. A reduction or increase in the ending stocks will

influence wheat imports, the prices of wheat and the prices of wheat products. It is thus clear that El Niño will have far reaching price effects not only for producers but also for processors and consumers (CCAA, 2006).

- Technology and Input costs

Technology and the lack thereof, especially on farm level and in the emerging farming sector, often handicaps prosperity on farms. High input costs will reduce the area of wheat planted which will lead to a reduction in supply and thus a reduction in profits in the wheat industry value chain.

- Labour

The labour force in the agricultural sector is facing many problems. HIV, especially in Africa, poses a significant threat to the labour force as millions of people are infected with and die from the virus world wide. High minimum wages and the high levels of unskilled labour further contribute to the global high cost of labour (www.avert.org, 2008).

- Water scarcity

The agricultural sector is one of the major users of groundwater. It is thus of the utmost importance to ensure that water is used sparingly and with caution by the agricultural sector without reducing yields and thus income generated by the sector (www.fao.org, 2008).

- Cost price squeeze

According to economist Dennis Shields (2009) the cost price squeeze is a result of farmers buying inputs and not using home-grown inputs. Crop producers face volatile energy and fertilizer costs which influence their returns. Shields also stated that periods of high commodity prices lead to expansion in crop production and this result in higher input prices which reduce profits. This in turn reduces production and ultimately leads to farmers going out of business if they cannot come up with ulterior motives, such as increasing production to increase output for given levels of input, to try and avoid the negative effect of the cost price squeeze (Ellis, 2009).

Challenges brought about by a changing market

- Population growth

The current low availability of grain is not only due to the increase in population but also to world demand for food increasing at a much faster rate than the associated increases in production. Joachim von Bruan from IFPRI has stated that while world food production is increasing by between one and two percent per annum, the world population increased by around four percent per annum (World Food Crisis, 2008).

- Consumer driven

The integration of the demand side of the food chain changed the world from a production driven market to a consumption driven market. This led to an increase in the variety and options of products available to consumers (www.newmediaexplorer.org). This is primarily caused by higher consumer awareness and will increase in future as consumer awareness increases.

- Changing disposable incomes

A shift to more luxurious products can be seen as the consumer's disposable income increases. Consumers will generally not buy more bread when a higher disposable income is earned. A shift towards starch substitute foods such as pasta, potatoes and rice is often seen.

- Convenience and health

Consumers are increasingly seeking for products that are healthy without compromising convenience. Consumers prefer to use and or eat "on the go" food products as they want to buy, prepare and eat in the quickest, easiest way possible (Staff reporter, 2005).

More recent issues

- Traceability

Another future high growth area is traceability. It is becoming increasingly important for consumers to know the exact origin of the seed stock as well as the process of production from planting, harvesting and post harvest processing to guarantee the purity of the final product (www.newmediaexplorer.org, 2007).

- Sustainability, food safety and green movement

Sustainability in the agricultural sector has become an important issue as consumers demand safe, clean, as well as green products because of diseases related to health scares and uneasiness regarding the production and consumption of genetically modified products such as wheat (www.reeis.usda.gov, 2007). The application of genetically modified wheat will however aid in increasing production as more valued crops will be planted on less land (www.newmediaexplorer.org, 2007). The issue of producing agricultural produce in a green environment makes the provision of food to the hungry a difficult task.

- Emerging farmers

Emerging farmers in the wheat industry face problems regarding affordable storage facilities and transport, much needed mentorship programs guiding them to become commercial farmers as well as the lack of opportunities to obtain loans to produce high quality, marketable wheat (Nyathi, 2009).

- Land reform

According to Tina Joemat-Pettersson, South African minister of Agriculture, Forestry and Fisheries, commercial farmers in South Africa play a vital role when it comes to producing sufficient quantities to try and change South Africa from being a net importer of food to being a net exporter. She stated that this will not be possible if all arable land is in the hands of subsistence farmers. Critics of land reform have argued that the current land reform policy harmed agricultural investment more because it took agricultural land out of the hands of commercial farmers (www.sagoodnews.co.za, 2009).

- Food security

Consumers of the world's poorest nations are often the hardest struck when it comes to the food security crisis. Consumers in these countries are suffering form severe, unrelieved malnutrition. The World Health Organization (WHO) identified 7 factors that may add to the global food security crisis. These are (WHO, 2010):

- Increasing prices of energy
- Insufficient investment in global agriculture
- Higher incomes and economic growth stimulate demand for food
- Subsidies leading to trade distortions
- Persistent unfavourable weather conditions and environmental degradation
- Subsidized bio-fuel production substituting the production of food
- Imposition of export limitations leading to hoarding and consumers buying out of panic

3.6 CURRENT ISSUES IN THE GLOBAL WHEAT INDUSTRY

Genetic improvements in wheat production

Greater genetic improvements are possible when public and private institutions collaborate especially regarding investment in wheat breeding. The National Association of Wheat Growers (NAWG) would like to see biotech traits like drought, disease and cold tolerance, nitrogen efficiency, improved yields and improvements in colour and flavour. All of these could possibly lead to increased profits on farm level (Schroeder, 2010).

South American wheat production

Vilmorin Corporation is one of the largest seed producers in the world and operates under Limagrain, the French cooperative, who just created a joint venture with Don Mario the Argentine seed producer. This partnership is aimed becoming the global leading supplier of wheat seed and at developing wheat and the production of wheat in South America with special focus on Argentinean wheat production. The focus on increasing Argentinean wheat production is partly due to the reduction in wheat production over the past ten years (Kroll, 2010).

Recession impacting on bread consumption

During times of recession competition, especially in the milling industry is extremely fierce. It was reported that consumers respond to the recession by switching the types of breads that they eat. Consumers typically switched from consuming rolls and baps to consuming less expensive sliced breads. A drop in organic, 'healthy' bread and whole-meal bread sales was also noted. It seems as if consumers are less prone to experiment during times of recession and prefers the basics. Consumers thus prefer cheaper products that they know and like (Lyddon, 2010).

Trends in global wheat flour trade

Flour shipments are expected to set a new record for the third consecutive year. The International Grains Council (IGC) expects the world wheat flour trade to increase with 3 percent to reach a new peak of 12.85 million tones for the year ending June 2010. Kazakhstan, Turkey and the EU are the main exporters of wheat flour with 23.8 percent, 18.3 percent and 11.1 percent respectively. Afghanistan is regarded as the largest importer of wheat flour with 1.6 million tones (Sosland, 2010).

3.7 BUSINESS MODELS OF THE FUTURE

The wheat milling industry and all stake-holders need to be able to engage successfully in the rapidly changing current and future business and market environment. Continuous changing business models and structure development is required to be able to cope with changes and to be able to ensure sustainable growth. Figure 47 below is a representation of the elements needed for a business model to be able to function successfully given that all three aspects are included into the strategic knowledge of thinking in an organisation.

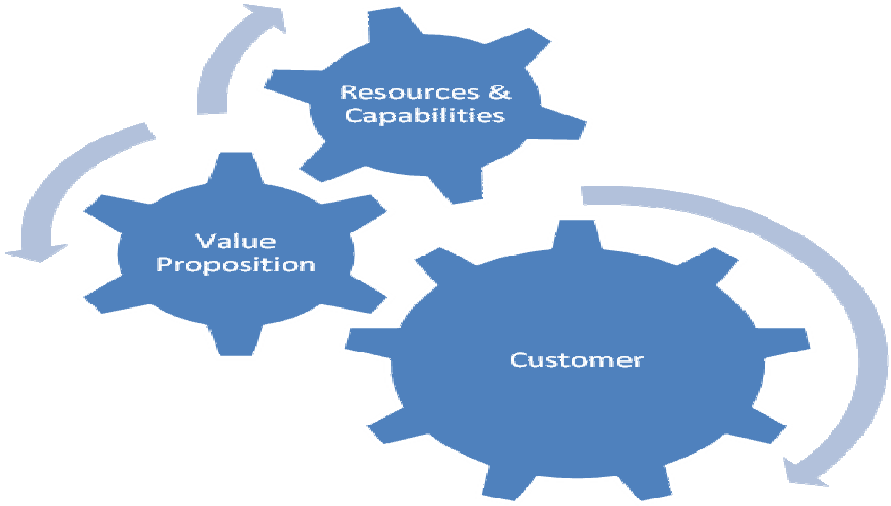


Figure 47: Business Model Template

Source: Abell, 2009

Based on the model of Abell (2009) management of a business must focus on the three segments as follows:

- Customer: Who is the customer that the business will be serving in the future?
- Value proposition: What will be offered to the customer in the future?
- Resources & capabilities: How will the 'offer' to the customer be delivered and value added in the processes

The development of business models for the future should focus on the customer with the environment and sustainability as the core for decision-making and strategy, according to the IIED (2009).

Pearson (2010), a renowned futurologist, shared his personal view on how the world of business can look like in 2020.The following trends were discussed by him:

- "The increasing political and economic dominance of emerging markets will cause global companies to rethink and customize their corporate strategies.

- Climate change will remain high on the agenda as companies seek to explore resource efficiency to improve the bottom line and drive competitive advantage.
- The financial landscape will look vastly different as increasing regulation and government intervention drive restructuring and new business models.
- Governments will play an increasingly prominent role in the private sector as demand for greater regulation and increasing fiscal pressures dominate the agenda.
- In its next evolution, technology will be driven by emerging-market innovations and a focus on instant communication anytime, anywhere.
- Leaders will need to address the needs and aspirations of an increasingly diverse 21st century workforce.

The way that business leaders plan for — and respond to — these trends over the next decade will help determine who the market leading companies of tomorrow will be (Pearson, 2010 in [Earnest & Young, 2010).

Professor Mohammed Karan addressed the conference of the Agricultural Business Chamber (ABC) congress 2010, held in Somerset-West in the Western Cape on behalf of the National Planning Commission (NPC). The NPC have a vision towards 2025 to look at agriculture in a new light. They are currently searching for a new paradigm for agriculture. The main focus of the strategy planning according to Professor Karan (2010) is to answer 'what is urgent' and 'what is important'. Thus the NPC will focus on the following:

- 'Cry the beloved countryside'
- Rediscover our role in the economy
- Getting past the ethical issues and stigmas
- The viability and role of the small scale farmers
- Assisting new entrants
- How to help the poor do better
- Serious lack of transformation
- Trust and contracted arrangements
- Implicit subsidization and multi-functionality
- The food security conundrum
- Water

- Competition issues
- Extending into Africa
- Public research *quo vadis*
- Future of family farms
- Private equity in agribusinesses
- Education and professional development
- Nature of growth
- Gender issues
- Climate change

If the NPC can succeed in finding effective solutions to overcome these paradigms, then agriculture in South Africa can grow sustainably. However in the mean time, agribusinesses will have to adapt their business models to make provisions for these paradigms as well.

"Business must build their own capacities to work effectively for sustainable development, and engage in strategic alliances with other enterprises, financial service providers, government agencies development practitioners and communities" (IIED, 2009). This should also apply to the National Chamber of Milling.

As indicated by the IIED (2009) the following key principles incorporated in the three elements of a business model need to be joined in strategic planning:

- "...the 'value proposition' of a business model for sustainable development needs to be considered in terms of financial, environmental and social values."
- "...the company needs to look not only at value creation and capture for itself and its customers, but also value distribution throughout the market chain."
- "The more effective the long-term business model for sustainable development are designed and implemented via collaboration." (IIED, 2009)

Although each business and industry have a different approach to these core principles, at the end the value added to the business, the value chain and final customer remains paramount. Agriculture and agribusinesses today faces huge challenges. Cooperation and co-creation of new knowledge markets is essential in the debates concerning the future of agribusiness, agriculture and the environment. Most issues require involvement not only from the business community and knowledge institutions, but also different levels of government and a diverse set of societal organizations.

Many (international) organization and companies are working to ensure a future for agriculture that is sustainable in terms of economic growth and environmental and societal values. In a broader perspective, those organizations generally work towards the same goal, but focus on different aspects of the agricultural arena or have a different mode of operation. Still, there is no clear recipe on how to work on this challenge and with whom. We are still in the experimental stages.

Organisations and businesses of the future will have to adapt and change their current core business models and short sighted visions of the present. This is to be able to facilitate the following and ongoing changes in the business and market environment, and answer the questions raised on the future of the milling industry.

The continuing reshaping and changes in the world's economies and financial markets are key principles to consider how to manage the external business environment and retain and develop current core businesses. Business's scenarios of the future and how the unfolding of these scenario's can potentially impact on the business must be developed and tested by expertise within the organisational and strategical planning of the board of directors. Dynamic and pragmatic business models for the future are required and contingency plans must be in place to focus on current and future risks, structural changes and unforeseen shocks.

Environmental conflicts within the food system are not a new concept to agriculture, rather an overlooked concept. Business models of the future will have to determine continuously creating sustainable growth given the environmental impact. In South Africa, for example, the rights of water are beginning to have a major impact as a restriction on farm expansion. Without farm expansions, industries cannot grow sufficiently and thus do not adhere to the goal of sustainable growth.

Technology and innovation implementation in meeting food system challenges needs to be up to standard and globally competitive. New methods and machinery needs to be implemented to lower costs and increase production efficiency and competitiveness without increasing the cost to the consumer. The harness of renewable energy needs to be used in running this technologically advanced machinery to further reduce harm to the environment.

Responsible food supply systems as well as the effectiveness of system optimalisation are critical for businesses to build their business models for the future. The effectiveness of today's systems means the downfall tomorrow if no improvements are made to the supply chain infrastructure, communication systems, logistics and control.

Human capital development and management issues are a growing concern for the future. During the 2009 AEASA conference in Durban, it was emphasised that there are not sufficient technical expertise, trained agricultural economists, extension officers and industry leaders in South Africa to supply in the demand for trained expertise. Organisations must invest into programmes to train new graduates in the respective fields of agriculture.

The following issues can impact on the South African agricultural landscape and new questions needs to be asked about the future environment in which they operate:

- Correcting the structural imbalance of maize exports, soybean and wheat imports in SA agriculture
- The impact of government policies on various aspects of agriculture and economy of SA
- EU farm subsidies that will phase out
- USA exports will be competitive given the devaluating currency
- South Africa will have a strong currency because of other structural weaknesses in other countries
- Agricultural growth markets will shift with the realignment of exchange rates
- In the past there has been too large focus on traditional markets. This lead to increasing the South African concentration risks
- The South African agricultural industries are under pressure. The increase in economies of scale as well as capital intensity, yield increases and diversifying can result in lower numbers of small scale shareholders because they have difficulty to establish themselves in the current market environment – a dichotomy in terms of establishing more emerging farmers.
- The lack of agricultural policy guidelines will change the way in which markets are shaped
- The impact of the emerging BRIC countries, and how these countries will handle imports and exports
- The impact of China on the world, and how this impact will change exports and imports

- The current state of the South African infrastructure. The lack of maintenance and infrastructural development will result in decreased competitiveness and higher costs to the consumers
- The environment and green movements are becoming a major concern to all. This needs to be factored into the strategical thinking of organisations to address value adding without damaging the environment
- The alliances and relationships formed within the supply chains as well as the ownership of an entire supply chain structure
- The continuous investigation of the Competition Commission and the impact on businesses. If the Competition Commission keeps focussing on individual large businesses (being highly integrated on all levels in the supply chain) the result may be that these groups may source from outside companies.
- Continuous talk on land redistribution and the nationalisation of farm land in South Africa
- The lack of appropriate governmental involvement in creating a sustainable growing agricultural sector without down grading methods
- Ownership arrangements into BEE

Given the above, the business model of the future will have to be pragmatic and focus on the following:

- Sustainability
- Climate change
- Emerging farmers/markets
- Technology
- Systemic risks
- The balance of power

Wheat farmers, wheat millers and the industry as a whole can develop an acceptable business model to focus not only on the current market environment but also to create value to customers in the future. The SWOT analysis of these industries, as earlier mentioned, assists in forming the core foundation and structure of the business model. Without this vision structure to expand upon and revise continuously, a business will not be able to create sustainable growth for the future.

3.8 THE ROLE OF THE COMPETITION COMMISSION

The Competition Commission of South Africa is a statutory body constituted in terms of the Competition Act, No 89 of 1998 by the government of South Africa that has the power to investigate, control and evaluate restrictive business practices, abuse of dominant positions and mergers to achieve equity and efficiency in the South African economy (CompCom, 2010A)

From the preceding paragraph it is eminent that the Competition Commission's main role and purpose is to establish an environment that is conducive for business and sound competition. The milling industry has been under investigation by the Competition Commission during the past five years. In a press release by the Competition Commission on 15 March 2010 findings of research done was referred to the Competition Tribunal against various wheat milling businesses. In the investigation, the Competition Commission found that various wheat milling businesses contravened the Competition Act by engaging in price fixing and dividing markets by allocating customers (CompCom, 2010B). They further feel that this action inhibited small bakeries from being effective competitors (CompCom, 2010B).

The Competition Commission is of the opinion that this unlawful action by some millers resulted in them being dominant and have excessive market power. According to the Kirsten (2007), market power refers to the ability of millers to raise their selling price and depress input prices to deter entry, to redistribute profits to oneself, from other firms and to sustain these benefits over time. Kirsten (2007), further identifies that a firm is dominant in a market if it has at least 45 percent market share. In the case of the top four wheat millers in South Africa, they represent 40 percent of the market share in 2007, according to the IDC (2010).

Following the investigation by the Competition Commission and findings to the Competition Tribunal, the Competition Commission issued another press release on 3 June 2010. In this press release the Competition Commission urged all millers of white maize and wheat to come forward and to settle the cases by cooperating. This cooperation implies full disclosure of information, facts, communication or data relating to the firm's participation in, or information about cartel activity in the milling industry (CompCom, 2010C).

From the preceding section it is clear that the Competition Commission succeeded in its role to investigate, control and evaluate restrictive business practises. The relevant importance of a Competition Commission in South Africa is very important and will ensure that business is conducted in a fair manner and that competition within an industry is enhanced. However, at present conducting business within the milling industry is very uncertain. Millers in the industry are very hesitant in providing information to anyone out of fear of prosecution by the Competition Commission. Various wheat millers were unwilling to participate in the interviews or share

information about the industry or their business environment in the proposed study, making a representative and accurate study that adds more value to various stake holders within the industry, difficult. Policy makers can also benefit from an industry where information is shared freely, in that decisions made will be based on accurate data and information.

The Commission should ensure that the industry, which in principle is in favour of what the Commission does, plays the role of a fair watch dog that protects businesses and prosecutes guilty parties. Clear rules of the game regarding exchange of information at various levels are required. The Competition Commission should establish a business environment where information is collated, and shared freely and where there is trust amongst the relevant parties. This will increase the wheat milling industry's potential to develop and compete freely, and also supply important relevant industry information to make policy decisions, to create industry benchmarks, to develop new business models and for purposes of research.

CHAPTER 4 DATA ANALYSIS AND RESULTS

4.1 INTRODUCTION

The chapter that follows, provides an in depth analysis of the results that were obtained in the study. As mentioned in chapter 1, in total 15 interviews were conducted of which 10 were wheat millers and five bakers. An effort was made to conduct interviews with small, medium and large scale wheat millers and bakers. One of the four biggest wheat millers was interviewed to capture the opinions of the four largest wheat millers. This was only to provide a level of measurement between the large scale wheat millers and baker and their smaller scale counterparts. For the purpose of the study, wheat millers and bakers will be seen as a holistic unit, because of their interrelatedness between them..

It must be noted that many wheat millers and bakers were in general unwilling to make themselves available for the study, pending the investigation by the Competition Commission. Especially larger scale bakers were unwilling or unavailable. It is however, important to take note that over the years the number of bakers has declined as they were forced out of the markets by retail outlets. The retail outlets had the advantage of a one-stop shopping experience over the bakers. An effort was also made to capture the opinions of retail outlets to supply information on how they perceive the wheat milling and baking industries. This was not successful.

4.2 STRUCTURE OF THE INTERVIEWS

The wheat millers and bakers differed from one another in the number of years in business, the milling and baking capacities and the total investment in buildings and machinery. This classification ensured that a more precise and consistent study can be conducted and that the opinions of all millers and bakers are captured. The structure section of the study was divided into wheat millers and bakers, to give a general feeling on the various interviewees that were conducted.

4.2.1 STRUCTURE OF WHEAT MILLERS INTERVIEWED

As mentioned above, wheat millers can be classified according to the number of years of experience and the size and scale of production. The years of experience category ranged from less than 10 years, from 11 to 20 years and more than 20 years of experience. Figure 48 below shows that of the total wheat millers interviewed, 44 percent has less than 10 years of experience, 33 percent has between 11 and 20 years and the remaining 22 percent has more than 20 years of experience.

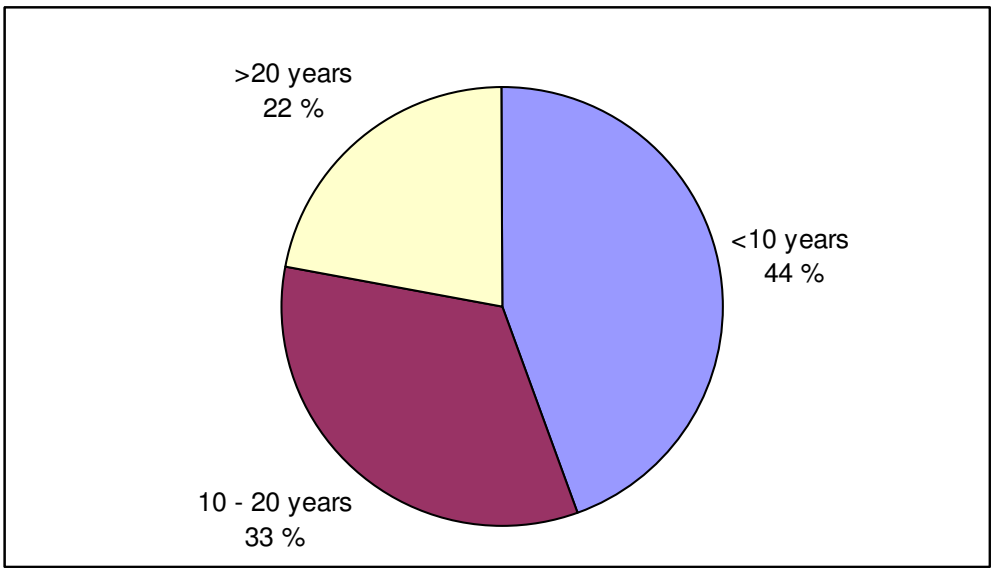


Figure 48: Years of experience of wheat millers

The study further divided the wheat millers into either a small, medium and large scale milling capacity. A small scale wheat miller mills between 0.5 and 25 tons per day, a medium scale wheat miller mills between 26 and a 100 tons per day and a large scale wheat miller mills more than a 100 tons per day. Figure 49 gives a breakdown of the size and scale of the wheat millers interviewed. From the figure it is clear that out of the total wheat millers interviewed, 10 percent are in the large scale category, 30 percent represents the medium scale category, with the remaining 60 percent milling wheat on a small scale.

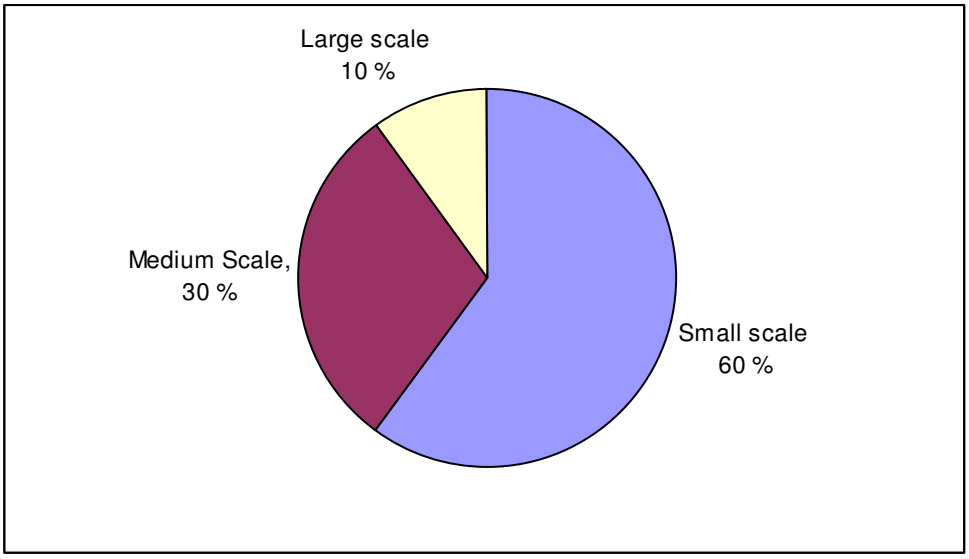


Figure 49: Size and scale of wheat millers interviewed

The last classification of wheat millers indicates the capital investment the miller has made.. Various efforts were made to identify the cost of machinery a new wheat miller would have to pay. Mill equipment sellers indicated that for a milling machine that has a small scale capacity, a new market entrant can expect to pay

R700 000. A milling machine that has a medium scale capacity, would require a capital investment in machinery of between R1.2 million and R5 million . For a large scale milling machine, one can expect to pay R1 million per ton per hour. The above classification is only for the milling equipment and excludes the capital requirements in storage, buildings, raw materials, other overheads and vehicles. This is an illustration of the capital requirements that is needed by wheat millers to start operations. A new market entrant must have access to more than a R1 million to start operations, if he/she mills on a small scale. This is a reason for the large number of small scale millers who participated in the study. Access to capital is a constraint for new market entrants. Milling equipment sellers indicated that in order to make the milling of wheat worth while, more than 300 tons of wheat must be milled per month. That is equivalent to around R1.5 million in capital requirements.

In conclusion, the average wheat miller interviewed has less than 10 years experience, mills on a small scale and has a total capital investment in machineries, buildings and vehicles of between R1 million and R2 million. For the purposes of the study to identify factors that limit agro-processing development in rural areas, the interviews conducted with the average wheat miller as explained will be a true reflection of the wheat milling industry.

4.2.2 STRUCTURE OF BAKERS INTERVIEWED

As was mentioned in section 4.2.1 classification of the interviewees was on the basis of the number of years of experience and the size and scale of operations. The years of experience for the interviewees ranged from one to 10 years, from 11 to 20 years and more than 20 years experience. Out of the total bakers interviewed, 20 percent indicated that they have more than 20 years experience, 40 percent indicated that they have between 11 and 20 years experience and the remaining 40 percent indicated that they have less than 10 years experience. Figure 50 indicates the years of experience for the bakers interviewed.

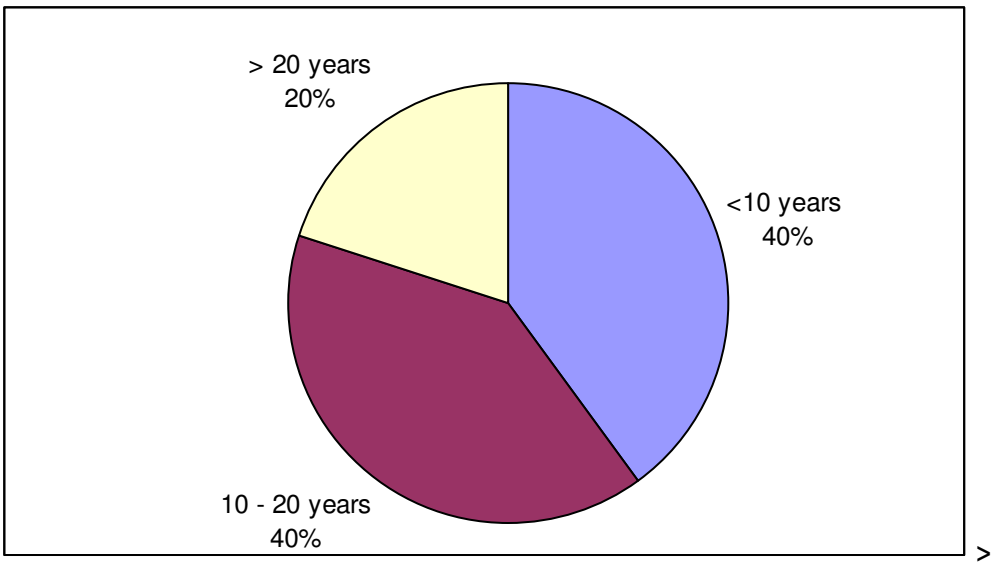


Figure 50: Years of experience of bakers interviewed

The size and capacity of bakers were also divided into a small, medium and large scale depending on the amounts of loafs of bread baked per day. For the purposes of the study, a small scale baker bakes less than a 1 000 loafs of bread per day, a medium scale baker between 1 000 and 5 000 loafs a day and a large scale bakers bakes more than 5 000 loafs per day. From Figure 51 it is clear that 80 percent of the bakers interviewed represent the small scale capacity, with the remaining 20 percent classified as large scale bakeries.

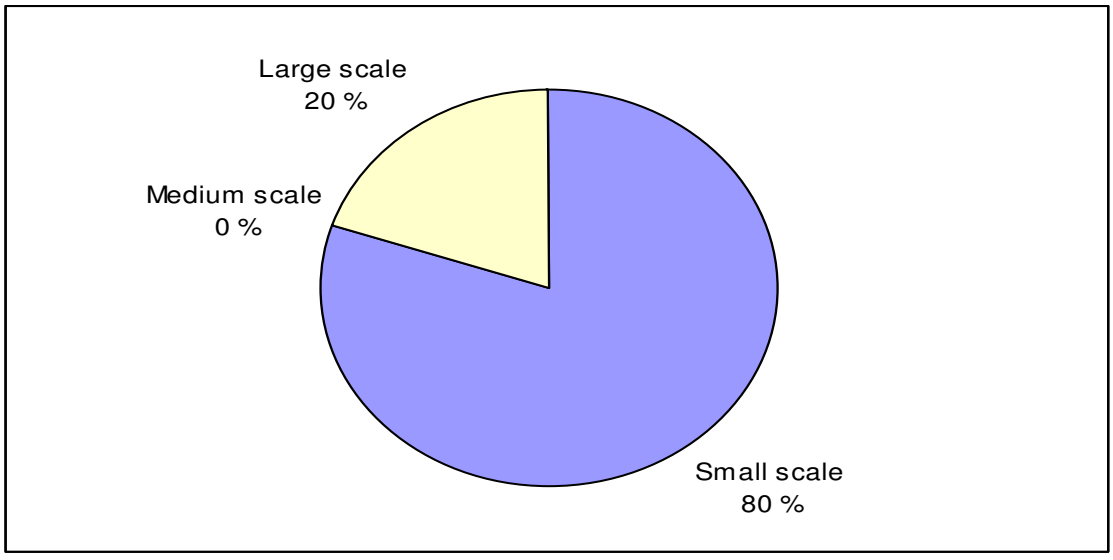


Figure 51: Scale and size of the bakers interviewed

To conclude, the average baker interview has less than 10 years and between 11 and 20 years experience and bakes on small scale. Many rural towns previously had thriving bakeries, but the supermarkets (Spar, Pick n Pay, Checkers/Shoprite) are indirectly responsible for the closure of many bakeries. The one stop

service offered by the supermarkets changed the buying behaviour of many rural consumers. For the purposes of the study, this average baker will give valuable insight into the objective of the study to identify factors that limit development in the baking industry.

4.3 CONDUCT OF WHEAT MILLERS AND BAKERS INTERVIEWED

4.3.1 INTRODUCTION

As mentioned before, the data results and interpretations will capture the opinions of wheat millers and bakers because of their interrelatedness with each other. The conduct of the wheat millers and bakers interviewed refers to the patterns of behaviour that market participants adopt to affect or adjust to the market in which they buy or sells (Aleksandrova & Lubys, 2004) The conduct of wheat millers and bakers section includes the following; a detailed analysis of the competitive environment in which they must operate, a detailed analysis of the Strengths, Weaknesses, Opportunities and Threats (SWOT) of the various wheat millers and bakers interviewed, the identification of the critical areas of a wheat milling and baking business, the reporting of the associated issues/constraints/challenges of the industries, the identification of barriers to entry and exit of wheat millers and bakers, the procurement decisions wheat millers and bakers make, the impact of imports, exports and sales on the wheat milling and baking business, the identification of risks that impact on the daily operations of wheat millers and bakers and the evaluation of support structures by **the Dti** and government. The section concludes with an analysis of the financial performance of wheat millers and bakers over the past years.

4.3.2 LEVEL OF COMPETITION IN WHEAT MILLING AND BAKING

The level of competition serves as an indicator of the long term sustainability of an industry. A high level of competition indicates market powers and monopolistic behaviours of key stakeholders within an industry. A high level of competition further enhances product differentiation and makes sure that the needs of the customers are met. The level of competition should not be too high to prevent new market entrants from entering the market while it should also not be too low that it will lead to a monopolistic situation. Low levels of competition will lead to customers being exposed to unnecessarily high prices and a one dimensional product. It is therefore vitally important to ensure that the level of competition is at a healthy level which will benefit producers and customers alike. From the outset of the study, special emphasis was put on the relevant importance of the level of competition within the wheat milling and baking industries.

The opinions express by wheat millers and bakers on the level of competition within the wheat milling and baking industry is illustrated in Figure 52. From this figure it is clear that not one respondent indicated that there is no competition in the wheat milling and baking industry. Out of the total respondents, 40 percent indicated that the level of competition within the wheat milling and baking industry is competitive. Having said that, it does not mean that there is more competition in the wheat milling and baking industry than what one would find in any normal business environment. The remaining 60 percent indicated that the wheat milling and baking industry is highly competitive and forces new market entrants out of the market. This is in stark contrast to the findings of the Competition Commission who found that there is a cartel in the milling industry. This investigation is the next step in a process that began in the Western Cape in 2006 when a shopkeeper, Imraan Ismail Mukaddam, complained to the Commission about the existence of a bread cartel.

The parties investigated possible cartels amongst Pioneer Foods, Foodcorp, Godrich Milling, Premier Foods and Tiger Brands. Premier Foods, Tiger Brands, Foodcorp and Pioneer Foods control about 90% of the local wheat flour market and supplied their own bakeries, as well as independent bakeries with flour, with only Godrich with less significant size. A cartel was found to exist and those involved were fined. But the bread and wheat industries are highly intertwined — for example 40% of the flour milled at Foodcorp's Ruto Mills is used in the production of its own brand of bread, Sunbake. When Premier confessed to its involvement in the bread cartel, it revealed the existence of the national wheat milling cartel.

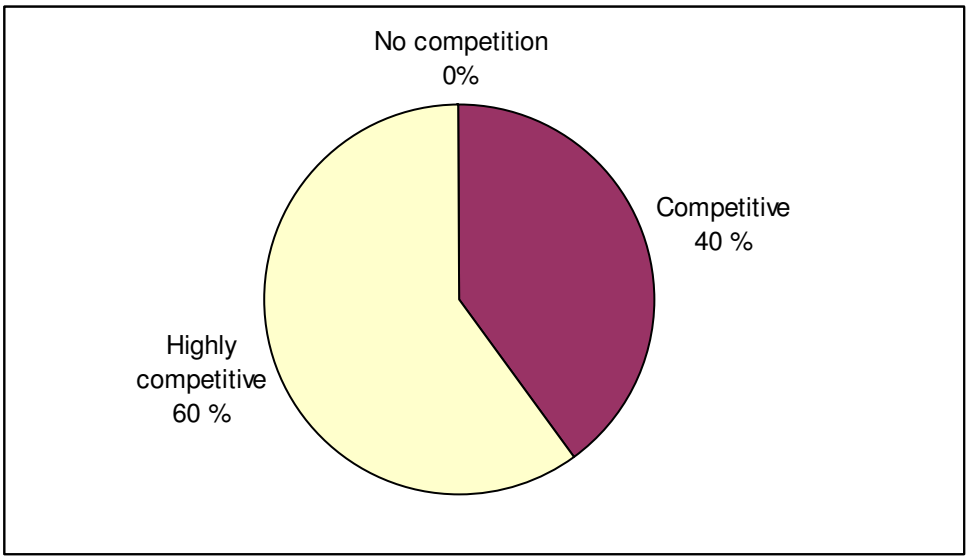


Figure 52: The level of competition perceived by wheat millers and bakers interviewed

The respondents indicated that the only way to cope with this high level of competition is to deliver a high quality product on time and with good service at a market related price. Small scale millers and bakers felt exposed to prices, especially when the large scale millers and bakers want to enter their markets. They feel

that large scale millers and bakers have the necessary cash flow to start price wars which forces small scale millers and bakers out of the markets. Large scale millers and bakers, on the other hand feel that the wheat milling and baking industry has low barriers to entry which makes it easy for new market entrants to enter the market, thereby increase the level of competition in their market environment. Small scale bakers also indicated that the larger bakers offer a bread less than 700g to the consumer. It is difficult for the small scale baker to adapt his/her baking process to accommodate for smaller bread and looses as a result cash strapped consumers. Many consumers are also unaware of the different weights. Commissioner Shan Tamburuth from the Competition Commission commented that "In addition to the negative effect of this conduct on consumers, it has also inhibited small bakeries from being effective competitors" (http://www.researchchannel.co.za/article/competition-commission-seeks-fine-for-wheat-milling-cartel-2010-03-15).

The competition between large scale millers and bakers vs. the rest of the industry, was also a very important objective of the study. It aimed to identify the role the large scale millers play in the wheat milling and baking industry in terms of competition. Out of all the respondents, 85 percent indicated that they have direct competition from the large scale millers and bakers, with only 15 percent indicating that the large scale millers have no influence on their wheat milling and baking business. From the 85 percent that indicated that they have direct competition from the large scale millers and bakers, 82 percent indicated that this competition from the large scale millers and bakers is detrimental to their operations. Figure 53 below indicates the perception by the respondents on whether they have competition from the large scale millers and bakers or not.

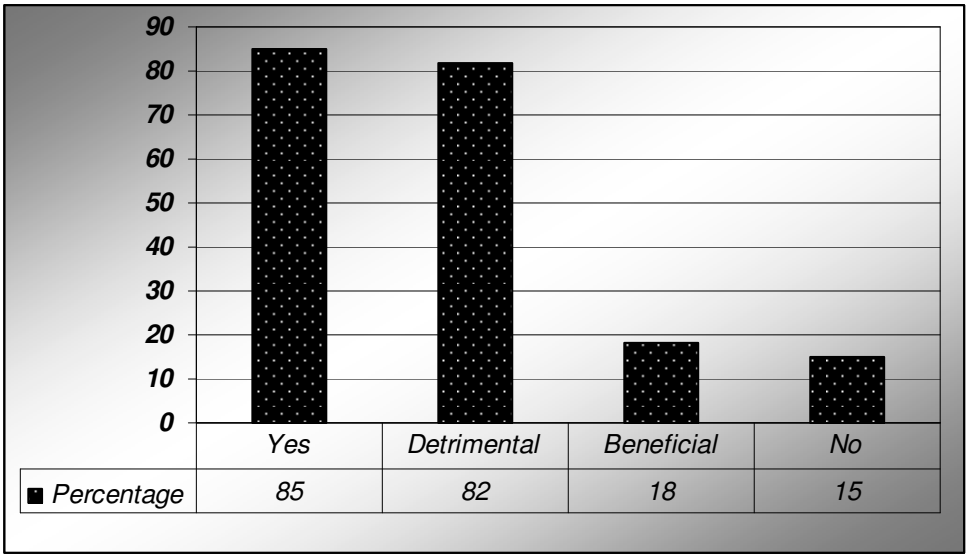


Figure 53: Perceived competition with large scale wheat millers and bakers

The major reason given for this perception by the respondents, is that they feel large scale millers and bakers can start price wars to enter a smaller scale wheat miller or bakers' market. This position of large scale millers

and bakers to start price wars is backed by their strong cash flow positions. Many bakeries also alluded to the fact that many of the large scale wheat millers own nearby bakeries against which the smaller scale bakeries compete. This leaves the smaller scale bakery exposed to the situation where the large scale wheat millers' sells flour to his own bakery at a much lower price than what the smaller scale bakery can procure. The smaller scale bakery's competitors can deliver a product at a much lower rate than what he can, forcing him out of the market.

In conclusion, the level of competition perceived by wheat millers and bakers are high as they feel that all the wheat millers and bakers sell a homogenous product, at a price set by market conditions and that a large number of millers serve the same market space. Some of the respondents feel that it is too high, forcing them out of the market. However, a large portion of respondents indicated that there is still capacity left in the county to increase wheat milling and baking on a small scale. What the study did find is that much more must be done to protect the smaller scale wheat millers and bakers against the large scale millers and bakers as they have the capital and cash flow requirements to distort the markets and increase the level of competition in the market.

4.3.3 STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT) ANALYSIS

The Strength, Weaknesses, Opportunities and Threats (SWOT) analyses is useful tool when analysing an industry.. For the purposes of this study, it was vitally important to identify the strengths of existing wheat millers and bakers, as this will aid in understanding the reason why they are still in business. The strengths of any business are those factors that an existing wheat miller or baker has over his competitors and rivals and which gives him a competitive edge in doing business. On the other hand, by identifying weaknesses of existing wheat millers and bakers, the study can discover what areas in the wheat miller and baker's business are in need of attention. In a perfect world, a wheat miller and baker would want to, as far as possible, address these weak areas of the business and eventually turn them into relative strong areas of the business. By doing this, the long term sustainability of the wheat miller and baker will be assured. The weak areas represent those areas of the business in which the wheat miller and baker has a competitive disadvantage compared to his competitors. Opportunities are vitally important in any industry and represent an indicator of the overall well-being of the industry. It is crucial for the long term sustainability of the industries that opportunities be identified. The study emphasised this fact and also identified possible opportunities. An opportunity therefore can be classified as a new market idea or product development. The last part of the SWOT analysis is to identify the threats that exist in the wheat milling and baking industries. Threats are issues external to the business and over which the wheat miller and baker has little control and needs to take account of and plan for.

Table 14 below gives an indication on the strengths of the existing wheat millers and bakers and as far as possible ranks the relevant strength areas according to importance. In the literature review section of this study, a detailed SWOT analysis (Table 14) was presented on the wheat milling industry. The SWOT analysis presented in this section differs from the one presented in the literature review chapter. The reason being, this section emphasises the SWOT analysis out of the view point of the existing successful wheat millers and bakers. This will give insight into the specific aspects that makes the wheat miller and baker successful. Identifying these aspects will be valuable in presenting factors that restrict agro-processing development.

Table 14: The strength areas of the wheat millers and bakers businesses as interviewed.

	RANKING
High quality product offering	10
High quality level of service offering	9
Good management team and expertise	8
The location of the business	7
Keeping the overheads as low as possible	6
High level of integration	5
High profit making industry	4
Low barriers to entry	3
A healthy level of competition within the industry	2
A market related product price	1

As explained, by identifying the strength areas of the existing wheat millers and bakers, an in-depth understanding is created on the factors that make the existing wheat millers and bakers successful. From the outset of the study it was clear that in order to survive and to be successful in the wheat milling and baking industries at least three or four of the strength areas listed in Table 14 must be present in a wheat milling or baking business. The highest ranked strength area of existing wheat millers and baker is the ability to offer a high quality end product that satisfies the specific needs of the consumer. The qualities of the product depends on the quality of the wheat obtained from farmers and near-by Silos, while it is also dependant on the milling and associated gristing techniques. In terms of the production of flour, it is essential that a constant product be delivered with a constant protein level that will ensure that the flour rises equally when baked. All of these attributes ensures that a high quality product be delivered.

The second highest ranked strength area of wheat millers and bakers is their level of service delivery. This is especially important for small scale wheat millers and bakers if they want to survive in these industries. Smaller scale millers and bakers pointed out that they have a competitive advantage over the large scale millers and bakers in that they can deliver a constant quality product on time and on a short notice. Large scale millers and bakers do not have the structure to deliver products on short notice. However, smaller millers and bakers must do more to exploit this competitive advantage which they have over large scale millers and bakers.

The two highest ranked strength areas of wheat millers and bakers coincide with the third highest ranked strength area, in that good managerial skills and expertise of management is essential to survive. One can not produce a high quality product on time and on short notice without having the necessary managerial skills from management. The interviewees also indicated that the wheat milling and baking industry requires management to be actively involved at the business for almost 24 hours a day, 7 days of the week. This will ensure that operations run smoothly and that wastage is kept to a minimum.

The location of the business was ranked as the fourth highest strength area of a wheat milling and baking industry. The location is vitally important in that it should be close to silo's which makes procurement of raw material easier or it should also be close to your final consumer. Identifying the location of a wheat milling and baking operations is the first crucial step in setting up the business for success.

In order to survive and to compete against the large scale millers and bakers in terms of product prices, business overheads must be kept as low as possible. This overheads area of the business was ranked as the fifth highest strength area of existing wheat millers and bakers. In order to keep overheads as low as possible, a proactive step must be taken to do running repairs and maintenance of machineries by one self, specifically the small millers.

The sixth highest ranked strength area of existing wheat millers and bakers is their ability to vertically integrate their business as far as possible. The days are long gone that only one final product be produced in a business. In order to survive, a wheat miller must create greater value by establishing a bakery, while a baker must develop his business into a one-stop shopping experience for customer. The perfect scenario is where a milling business is integrated with a bakery. However, this high level of integration requires top level skills. It also requires additional capital outlays. Like any other large scale operation, it becomes more difficult to run the business effectively. Nevertheless, a high level of integration is vitally important for the sustainability of the business.

The seventh, eight, ninth and tenth highest ranked strength area of existing wheat milling and baking business can be summarised as follows. The industry, when managed correctly is highly profitable, with low barriers to entry. This results in a healthy level of competition which ensures that the various existing businesses stay sharp and dynamic which will result in new product developments and ideas. It is lastly vitally important that the pricing of the product be market related in order to survive and to sell products.

To conclude, the strength areas of existing wheat millers range from a high quality product to keep overheads as low as possible and to pricing the product at a market related level. In order to survive any combination of three or four of the above mentioned strength areas must be present. This gives valuable insight into the factors that should be exploited in order to develop the wheat milling and baking industries in rural areas.

As mentioned before, the weaknesses of wheat millers and bakers as identified in this section vastly differ from the weaknesses identified in Table 1 of the literature review section. The main purpose of this section is to identify weaknesses of the various wheat millers and bakers still in operation. This will give some insight into various weak areas that can be exploited and be changed into strength areas. Table 15 below summarises and ranks the relative weak areas of wheat millers and bakers as interviewed.

Table 15: The weak areas of the wheat millers and bakers businesses as interviewed

	RANKING
Motivated, loyal labour force	10
Obtaining the necessary capital requirements	9
Developing an effective marketing campaign	8
Handling bad debts	7
Acting against theft	6
Procurement and logistics management	5
Having high overhead costs	4
Increasing milling and baking capacity	3
Limit product differentiation	2
Cash flow positions	1

The first highest rank weak area of wheat millers and bakers are the inability of millers and bakers to find loyal and motivated labourers. This problem is especially the fact in the rural areas where it becomes difficult to find motivated and loyal labourers. The industry must attract dedicated and motivated labourers back to the industry and provide them with the necessary skills to do the jobs. According to the Baker's forum (2006), the

baking industry has skill development programme by which dedicated labourers can attain the necessary skills. However, the opinions within the industry are that much more must be done to initiate skills development programmes. The National Chamber of Milling expressed their disappointment on the level to which government training authorities was involved in the facilitating and training in the food and beverage manufacturing sector. They are of the opinion that much more needs to be done (National Chamber of Milling, 2010).

In any business, having access to the necessary capital requirements is crucial to the overall success. Attaining the capital requirements was ranked as the second weakest area of wheat millers and bakers. The wheat millers and bakers also pointed out to the unwillingness of corporate banks to provide the necessary funding, making the execution of the expansion plans of wheat millers and bakers difficult. Although the **Dti** has a Manufacturing Investment Programme (MIF) to help wheat millers and bakers in starting operations, the process is to long and can take up to two to three years.

The third highest rank weak area of wheat millers and bakers is their inability to start an effective and well directed marketing campaign. A marketing campaign is a vital ingredient in establishing and exploiting a new market opportunity while at the same time strengthening the brand name of a product.

Bad debts of wheat millers and bakers are one of the main reasons why wheat millers and bakers have to close down their businesses. Bad debts were therefore ranked as the fourth highest weak area of existing wheat millers and bakers. The problem arises when wheat millers and bakers sell their products on credit to customers, which leads to the situation that the debts never get recover. This impacts on the cash flow position of wheat millers and baker as they can not buy raw materials from silo's or farmers.

Combating theft on and around the premises was ranked as the fifth weakest area of existing wheat millers and bakers. The act of theft takes place on a continuous basis which forces management to spend a great amount of time and effort in combating theft, time and effort that could have been more productively utilised. **The Baker** (2010), reported that the number of robberies has increased by 17 percent. The baking industry added its voice and called on Government to act against crime (The baker, 2010). This indicates the severity of the problem within the industries.

Procurement and logistics management was ranked as the sixth highest weak area of wheat millers and bakers. Wheat millers and bakers are exposed to external forces in terms of logistics. For example, if the railway services are not up and running, wheat millers and bakers must make use of alternative transport systems which is costly and sometimes ineffective. Logistics as mentioned are very costly. According to **the**

Baker (2010) logistic costs increases around 1 percent per annum and represented 15.9 of the GDP. On procurement, wheat millers and bakers are exposed to price volatility of wheat prices. A detailed analysis of price volatility was presented in section 3.3.5.

As explained in the strength area section, keeping the overheads as low as possible is vitally important for the success of the business. This fact was again stressed in the weak area section as some wheat millers and bakers acknowledged the fact that they have high overhead cost, which they must offset against higher output prices. The ability to keep overheads low was ranked as the seventh highest weak area of their businesses.

The ability to increase the milling and baking capacity was seen as a weak area of their respective businesses. This inability to increase the milling and baking capacity when necessary is a function of the inability to attain the necessary capital requirements as explained earlier. Milling and baking capacity was ranked as the eight highest weak area of existing wheat millers and bakers.

The wheat milling industry is characterised as an industry with very little product differentiation abilities. Wheat millers and bakers also pointed out this fact and mentioned and ranked it as their ninth highest weak area of their business.

The last weak area mentioned by wheat millers and bakers was their respective cash flow positions. Wheat millers and bakers indicated that managing the cash flow of the business is crucial to the overall success. Cash flow positions are effected by wheat millers and bakers as they have to procure raw material on a cash basis but in turn have to sometimes sell their product on a 30 to 60 day payback period. This was especially the case for wheat millers and bakers that sell their product to retailers.

In conclusion, by identifying weak areas of existing wheat millers and bakers, valuable insight is given on the areas of their businesses in which they struggle. The weak areas ranged from the inability to attain labourers to their respective cash flow positions. In the efforts to identify factors that limit agro-processing development, a great deal of the industry is learnt from reviewing the weak areas of existing wheat millers and bakers.

Opportunities of any industry can be defined as the ability of stakeholders in the industry to see new product and market developments. From a long term sustainability point of view of the industry, identifying new market and products developments is crucial. From the outset of the study, it was vitally important to identify possible new opportunities as seen by the existing wheat millers and bakers. If new opportunities are identified, agro-processing development in rural areas can be initiated. Table 16 below identifies possible opportunities that can be exploited by the industry.

Table 16: Wheat milling and baking opportunities as identified by the interviewees

	RANKING
Vertical integration of the various businesses	5
Wheat milling in rural areas	4
Expansion into retail market	3
Opportunity in milling other grain types (Diversification)	2
Increase in milling capacity	1

From the outset of the study it was clear that wheat millers and bakers feel that the biggest opportunity that presents itself in the industry is vertical integration. As explained in the strength area section, vertical integration represents the process by which wheat millers and bakers become one entity and sell a product that has been processed to add value on the premises from the raw material (wheat grain) to the final product being bread. This will ensure that input costs are been kept to a minimum which will result in a lower output price. However, the trade off between having a lower input costs against a higher capital requirement that will increase your overhead costs must be examined.

The respondents also indicated that there exists an opportunity to increase wheat milling in rural areas as there is a lesser degree of competition. They also indicated that they feel consumption of flour increases in rural areas when there is a shift in the communities' level of income. Consumers' preferences changes when there is a shift in their level of income as they will change their consumption from maize meal to bread products. Therefore, a shift in the level of income in rural areas presents the wheat milling and baking industry with an opportunity to expand production.

Another form of opportunity, much the same as the opportunity as described above is to expand sales in the retail sector during the periods when there is a change in the consumers' preferences from maize meal to bread products. However, this opportunity can lead to another problem in terms of cash flow as some retailers have a 30 to 60 day payback period.

Diversification was another opportunity, especially for wheat millers. Some of the respondents indicated that there is an opportunity in milling other types of grains for example maize and oats. However, the capital requirements needed in adjusting the machinery can prove to be expensive.

The last opportunity encapsulates all of the opportunities presented above in that there exists an opportunity for wheat millers and bakers to increase their production capacity as individuals.

From the above opportunities it can be summarised that there are opportunities within wheat milling and baking, provided that the necessary capital requirements are available.

The last section of the SWOT analysis is dedicated to the threats that are present in the wheat milling and baking industries. Threats as defined earlier, presents that issues that is external to the operations of the wheat millers and bakers and over which he has no control. Table 17 summarises the threats as indicated by existing wheat millers and bakers.

Table 17: Threats in the wheat milling and baking industries

	RANKING
Ever increasing input costs (Electricity prices & Fuel prices)	5
An unhealthy level of competition within the industries	4
High levels of imported flour	3
Hiring motivated and loyal labourers	2
The act of theft taking place at premises	1

The highest ranked threat that exists within the industry, and over which wheat millers and bakers have little control, is the rise in input costs. Wheat millers and bakers specifically amended to the increase in electricity prices and fuel costs. With the 25 percent per annum increase in electricity prices for the next three years looming over South Africa, wheat millers and bakers are exposed because of the industries high level of electricity usage. This increase can lead to more wheat millers and bakers taken out of business because of their inability to offset these increases into higher output prices. Smaller wheat millers and bakers will especially be more exposed to electricity price increases.

Following the recent investigation by the competition commission into the wheat milling and baking industry, tension was created on the level of competition that exists in the industry. Some wheat millers and bakers feel that this investigation will leave the industry with a negative perception, impacting the long term sustainability of the industry.

The third highest ranked threat that exists in the wheat milling and baking industries is the level of imports of flour. A situation is created where wheat millers can be exposed to increases in the level of imports in the near future.. However, at present the wheat milling industry is protected by additional import tariffs above the tariffs imposed on wheat imports.

The fourth and fifth highest ranked threat was already mentioned in the previous section and can be summarised as the threat of hiring highly skilled, dedicated and motivated labourers and the act of theft taking place on wheat millers and bakers premises.

In conclusion, there exists many threats in the wheat milling and baking industry. The five highest ranked threats that exist are presented and explained above. From a development point of view, much more should be done to protect the wheat milling and baking industries against these threats.

4.3.4 CRITICAL AREAS OF A WHEAT MILLING AND BAKING BUSINESS

One of the objectives of the study is to identify the critical areas of a wheat milling and baking business. The critical areas of the business represent the areas of the business that must be effectively managed in order to secure the successfulness of the wheat milling or baking business. By identifying the critical areas of the existing wheat millers and bakers, valuable insight on how successfully managed a wheat milling and baking business are run. The views and opinions of the wheat millers and bakers interviewed can be summarised as in Table 18. The table below ranked the ten most important areas of a wheat milling and baking business.

Table 18: The critical areas of a wheat milling and baking business as identified by the interviewees.

	RANKING
Establishing of a well defined market (end consumer)	10
Effective management of the cash flow position	9
Knowledge of the wheat milling and baking	8
Effective cost management strategy	7
Procurement management	6
Obtaining and managing the required Capital	5
A high level of service delivery	4
The management of labour	3
Applied wheat gristing techniques	2
A well managed marketing campaign	1

From Table 18, the highest ranked area of a wheat milling and baking business is to clearly define and establish the business end consumer or market. Before starting operations, questions including; who the final

consumer will be, in what geographical area will I sell my product, what distribution channel will I make use of etc. must be answered. Identifying your market is the first crucial step in setting up your business for success.

As mentioned before, managing the cash flow of a wheat milling and baking business is crucial. The interviewees indicated that managing the cash flow position is the second highest ranked area of the business. Management of the cash flow position is especially important in the wheat milling and baking industries as procurement and selling is mainly done a cash basis. Any delay in payment from the consumer can result in cash flow problems.

The third highest ranked area of a wheat milling and baking business is the level of knowledge and experience of management in the milling and baking industry. In order to be successful, knowledge and experience of management is essential. Knowledge and experience refers to overall management of the business and the techniques of milling and baking.

The wheat milling and baking industries are characterised as high volumes, low margin industries. Cost management therefore is very important and will ensure that costs are kept to a minimum, crucial for the overall success of the industries. Cost management refers to exploiting opportunities in reducing costs when it presents itself, for example buying necessary raw material in bulk to reduce the cost per item, etc. and setting the correct output price given the input and overhead costs. Cost management therefore was ranked as the fourth highest area of a wheat milling and baking business.

Procurement management entails the procurement decisions of raw materials (including wheat grain) that must be made in order to produce a consistent quality product. Procurement management further refers to decisions of whom the suppliers of the raw materials will be, what percentage of the procurement will be done on contractual basis, will SAFEX be used and what percentage of total procurement will be done on SAFEX? Procurement management therefore was ranked as the fifth highest critical area of wheat millers and bakers.

As mentioned earlier, obtaining the necessary capital requirements and managing it in the correct manner, is crucial to the overall success of wheat millers and bakers. Expansion of the business and increasing the milling and baking capacities is dependant on the availability of capital. Wheat millers and bakers further indicated that the correct management of the available capital is crucial and will ensure that funds are available when necessary. Obtaining and managing capital was ranked as the sixth highest critical area of wheat milling and baking businesses.

Service delivery in the wheat milling and baking industry, especially for smaller scale businesses, provides a

competitive advantage over competitors. As mentioned before, smaller scale wheat millers and bakers uses service delivery as a competitive edge over large scale wheat millers and bakers. Service delivery entails the ability to produce a high quality end product on time and within a short period in time. It is therefore not uncommon the rank service delivery as the seventh highest critical area of wheat milling and baking businesses.

Management of labour was indicated as the eight highest critical area of a wheat milling and baking business. Management of labour involves hiring dedicated and motivated labourers with a relatively high level of knowledge and experience. As aforementioned, hiring dedicated and motivated labourers is an issue of concern that needs attention.

Wheat gristing technique entails the process of mixing different grades of wheat grain, to produce the desired product. Wheat millers most often than not, mixed a B1 grade with a B2 grade wheat to produce the desired quality of flour. Wheat gristing techniques were indicated as the ninth highest ranked critical area of wheat milling.

The tenth highest ranked critical area of wheat millers and bakers are the successful implementation of a well directed marketing campaign. This area of the business will aid in establishing a brand name and to sell the final product to the desired end consumers. In any business, managing a marketing campaign is crucial, none more so in the wheat milling and baking industries.

Wheat millers and bakers, apart from the ten highest ranked critical areas listed above, also indicated the following areas of the business that is crucial for the overall success. It is worth noting these areas:

- Keeping bad debts as low as possible.
- Locating the business at the correct spot, close to the Silos and your final consumer.
- Keeping your overheads as low as possible.
- To be as effective and cost efficient as possible.

To conclude, in order to be successful, a wheat miller and baker must successfully manage the critical areas as mentioned above, in order to be successful. In identifying the critical areas of a wheat milling and baking business, some light is shed on how to successfully and effectively manage a wheat milling and baking business.

4.3.5 THE KEY ISSUES/ CONSTRAINTS/ CHALLENGES CURRENTLY BEING EXPERIENCED BY WHEAT MILLERS AND BAKERS

The issues, constraints and challenges currently being experienced by the wheat millers and bakers resulted in a wide range of opinions. The opinions of wheat millers and bakers in terms of the challenges in the wheat milling industry were also very diverse. Table 19 reflects the ten most important issues, constraints and challenges that wheat millers and bakers feel impact the industries dramatically

Table 19: The ten most important issues/constraints/challenges currently being experienced by wheat millers and bakers.

	RANKING
The knowledge levels of labourers	10
The act of theft taking place on and around premises	9
Availability of wheat	8
Electricity supply and costs	7
Credit availability from Banks and support of **the Dti**	6
The deteriorating infrastructure	5
The collusion of wheat millers.	4
Imports of wheat and flour	3
The respective cash flow positions	2
The ability of large scale millers to have high volumes of raw material in hand	1

As mentioned before,, the wheat milling and baking industries suffer from an inability to attract motivated, dedicated and knowledgeable labourers. Although the baking industry does have a skills development programme, more must be done to exploit this programme especially in rural areas of South Africa. The milling industry must follow this example and initiate skill development programmes. The ability of the industry to attract knowledgeable labourers was ranked as the highest challenge of the industries. As previously mentioned, the National Chamber of Milling expressed their disappointment in the level in which government training authorities was involved in the industry (National Chamber of Milling, 2010).

Theft which is a very serious issue takes place on a continuous basis on and around the premises. Theft was ranked as the second highest challenge within the wheat milling and baking industry. It forces wheat millers and bakers to spend time and effort on combating crime and theft that could have been more productively used. The industry must find an answer and solve the problem of theft.

Availability of wheat at the right price and place in South Africa was also a challenge identified by wheat millers and bakers and was ranked as the third highest challenge currently being experienced by the industries. South Africa must do more to protect and develop local production of wheat. If not, a constant restructuring of the prices of the industries takes place, increasing the procurement risks.

The recent announcement of electricity price increases coupled with inconsistent supply in electricity will hamper the sustainability of the industry. Electricity price increases means higher input costs to produce the final product. In an industry that is classified as a low margin, high volume industry, increases in input costs could lead to wheat milling and baking businesses taken out of production. The inconsistent supply of electricity (power dips and load shedding) incurs a lot of unnecessary costs which increases the overhead costs. As explained earlier, it is vitally important to keep the overheads as low as possible. A solution must be found for the electricity price increase and supply in order to promote the development of the industry. Electricity price increase and inconsistent supply therefore was ranked as the fourth highest challenge in the industries.

The fifth highest ranked challenge currently being experienced by the industries was the level of credit availability from the commercial banks and support structures of **the Dti**. Wheat millers and bakers indicated that it is difficult to obtain the necessary funds from banks as the industries are deemed as a high risk low return industry. Although there are grants available from the **Dti**, the process takes too long – up to a couple of years. This long duration of the process was also stated in a study of the Department of Health (2007). In this study it is stated that the process can take up to four years to get approval for funding. Often, the applicant must make use of professional services of a consultant, incurring unnecessary costs. The process of allocating grants to the various wheat millers and bakers must be speedier to ensure the business survives or is able to take an opportunity. .

The deteriorating infrastructure (railways and roads) impacts severely on the industry in terms of service delivery and the quality of the product being delivered. As recalled earlier, in order to be successful in these industries, a constant quality product must be delivered with a high quality of service. However, with the deteriorating infrastructure delivering a high quality product with a high level of services becomes difficult and incurs significant amount of unnecessary costs. Government should improve the infrastructure, especially in the rural areas as this will aid in the development of the wheat milling and baking industries.

The recent investigation into the wheat milling and baking industry by the Competition Commission found that large scale wheat millers and bakers are engaging in price fixing and dividing markets. This was ranked as the

seventh highest ranked issue/challenge/constraint the industries are currently experiencing. Many small scale wheat millers and bakers feel that this prosecution, although necessary, had a negative impact in terms the reputation of the industry. They further perceive that the collusion by the large scale wheat millers and bakers forced the smaller scale wheat millers and bakers out of business, which limits development in the wheat milling and baking industries. Another indirect impact of this collusion came in the form of many wheat millers' and bakers' unwillingness to share information. This in turn makes research studies difficult which does not bode well for development in the industries. Stake holders and government must ensure that such collusion will not happen in the future, in order for the wheat milling and baking industries to develop.

The eighth highest ranked challenge in the wheat milling and baking industry is the level of flour and wheat imports. As mentioned, wheat millers and bakers are forced to import flour and wheat when local supply is insufficient. Wheat farmers and millers must be protected against imports, whether by non tariff barriers or a higher import tariff.

The cash flow position as mentioned before is important for the sustainability of any wheat milling or baking business. Managing the cash flow was ranked as the ninth highest challenge in the industries. The tenth highest ranked challenge in the industry is more appropriate to small scale wheat millers and bakers and refers to the ability of large scale wheat millers and bakers to stock up on high volumes of raw materials. This creates the advantage to the large scale wheat millers and bakers in that they can take advantage of the situation when the price of wheat grain and flour increases. However, the opposite is the case when the wheat grain and flour prices decreases, reversing the advantage back to the smaller scale wheat millers and bakers.

In summary, in order to identify factors that restrict development in the wheat milling and baking industry, a clear understanding of the industries key challenges must be drawn. In order to develop the industries, solutions to the challenges must first be found in order to eliminate the challenges.

4.3.6 BARRIERS TO ENTRY AND EXIT OF WHEAT MILLERS AND BAKERS

One of the main objectives of the study is to identify barriers to entry and exit within the wheat milling and baking industries. A barrier to entry is any factor that restricts potential wheat millers and bakers from entering the market, whereas barriers to exit are any factors that restrict current wheat millers and bakers from exiting the market. The wheat milling and baking industry is characterised as an industry which has relatively high barriers to entry. By identifying the barriers to entry, emphasis is placed on the industry in terms of the potential to expand and grow in a relatively short period of time. Table 20 below identifies and ranks the ten most important barriers to entry that exists in the wheat milling and baking industries.

Table 20: Barriers to entry for the wheat milling and baking industries.

	RANKING
Obtaining the necessary capital to start operations	10
Establishing a market	9
Knowledge of the wheat and wheat milling industry	8
Sound business skills	7
A well maintained infrastructure around the premises	6
A lack of marketing management knowledge	5
A trusted relationship with suppliers and buyers	4
Availability of the necessary cash flow	3
The location of the business	2
Obtaining a highly skilled labour force	1

A barrier to entry is any factor that restricts potential wheat millers and bakers from entering the market or any factor that restricts development in existing wheat millers and bakers. The highest ranked barrier to entry that exists in the wheat milling and baking industry lies the acquisition of the necessary capital requirements. This is especially the case in the wheat milling industry where the capital requirements exceed the capital requirements needed in the maize milling industry. Start-up finance in the maize milling industry is estimated at R850 000, whereas in the wheat milling start-up finance can exceed over the R1.5 million. The capital requirements, therefore was indicated as the largest barrier that exists in the wheat milling and baking industries.

Before starting a milling or baking business, an end-consumer/market must be identified. The second highest barrier to entry that exists in the wheat milling and baking industry is the establishment of an end market. A prospective wheat miller and baker must exploit a new market opportunity or product development. However, wheat millers and bakers indicated that there is space in the rural areas to increase the wheat milling and baking capacity.

The level of knowledge the new wheat miller and baker has in terms of wheat, wheat milling and/or baking can restrict a new wheat miller or baker from entering the market,. A new wheat miller or baker must for example, have knowledge on the grades of wheat that is used for milling, knowledge on the steps and processes of

wheat milling and baking and on how to manage the overall wheat milling and baking business. The large scale millers have a definite edge over smaller scale millers in that they hire specialised labourers for each process in wheat milling and baking. For example, they will hire a procurement, financial, marketing specialist, etc. each having a high level of knowledge and experience in their respective fields. On the contrary, smaller scale wheat millers is more of a one man show, where the owner must do the procurement, finance, etc. Knowledge of a new wheat miller and baker in the industries was indicated as the third highest barrier to entry that exists in the wheat milling and baking industries.

The level of knowledge led to the fourth highest barrier to entry that exists in the industries, in that a wheat miller and baker must have sound business skills. Business skills refer to the overall management of the business. At the end of the day, a wheat milling and baking business must be managed like any other business. That means exploiting business opportunities, managing a business in a cost efficient way, getting the labourers to work together towards one specific goal, etc. Without sound business skills, a small scale wheat miller or baker will be unsuccessful.

The fifth highest barrier to entry is the quality of the infrastructure on and around the premises. A lack of a high quality infrastructure on and around the premises will incur unnecessary cost and can further lead to a product that is not of a high quality and that is not delivered on time. The infrastructure refers the quality and quantity of water, the railway and road infrastructure and electricity supply to the premises. Without these basic requirements a wheat milling and baking business can not function properly.

As explained in the level of knowledge barrier to entry section, it is important to have the necessary marketing management skills. A lack of marketing management skills of new market entrants was indicated as the sixth highest ranked barrier to entry. The large scale wheat millers and bakers definitely have an advantage over the smaller scale wheat millers and bakers in that they hire marketers that have the necessary skills and experience to manage and direct a well thought out marketing campaign. Smaller scale millers and bakers are more dependant on word of mouth marketing campaigns and do not have the necessary skills and experience to initiate a well directed campaign. From a barrier to entry point of view, a new market entrant must have a marketing plan in place.

Having well established relationships in the wheat milling and baking industry was indicated as the seventh highest barrier to entry that exists in the wheat milling and baking industry. A trusted relationship with suppliers of raw materials and buyers of the final product will certainly aid in the establishment of a new business.

The eighth highest barrier to entry relates to the first barrier to entry as mentioned above, in that a new market

entrant must have the necessary cash flow available and furthermore have the necessary skills to manage the cash flow position of the respective business. Managing the cash flow position will help the business to take advantage of opportunities when they present themselves. Large scale millers have the cash flow positions available to take a position in the wheat market for a long period. Should the wheat prices increase, larger scale millers take the advantage. However, should prices decrease smaller scale millers and bakers are in a better position.

Situating the business at the correct location is very important and is one of the first crucial decisions that need to be taken in setting up the business for success. The location of the business was indicated as the ninth highest barrier to entry that exists in the industries. Wheat milling and baking business should be located near silos or the end consumer, especially for small scale wheat millers and bakers.

The last barrier to entry that exists is that of obtaining labourers with high levels of knowledge and experience. The wheat milling and baking industries are dependant on labourers with high levels of experience and knowledge. A new market entrant must be able to obtain highly skilled labourers.

To conclude, the wheat milling and baking industry have relatively high barriers to entry. The biggest barriers that exist are the high capital requirements and the ability of new market entrants in establishing a new market.

As mentioned before, a barrier to exit is any factor that restricts an existing wheat miller and baker from exiting the market. All the respondents indicated that the only barrier to exit that exists in the wheat milling and baking industry is the ability to sell the machinery at a price that is acceptable for the owner of the machinery. If the wheat mill owner or bakery wants to stop operations, a willing buyer of the assets is required. This is sometimes a tiresome task in that new market entrants are hard to come by, following the high barriers to entry that exists within the market. The industry does not have willing new market entrants that want to start milling and baking operations. It is therefore perceived that finding a suitable buyer for your assets is a tough task and could potential restrict the wheat miller or baker from exiting the market. Even if a new buyer of the assets is found, it does not guarantee the wheat miller or baker that he/she will receive a price that is on average the same as the book value of the assets. The buyer can offer him/her a price much lower than the book value of the assets, thus demotivating the wheat miller or baker to sell his/her assets.

4.3.7 PROCUREMENT DECISION

One of the most important areas of running a successful milling business is to make the right procurement decisions. The ability develops over a long period of time. As was explained in barrier to entry section,

experience and business knowledge are key to the overall success of any business, none more so in the milling and baking industry. Procurement decisions entail making the right decisions in terms of the quantity of raw material that need to be bought and buying from the right supplier at the correct price given the specific market conditions. It further entails whether to buy the raw materials on a contract basis. These types of decisions are dependant on experience and business knowledge. This section provides some insight in to the type of procurement decisions a wheat mill owner and baker makes daily.

One of the most important raw materials a wheat miller buys is wheat grain and in the case of the baker, the procurement of flour. It is therefore vitally important that the correct procurement decisions are made and that the raw material is bought at the right time and price. In the case of wheat milling two different procurement channels exists. The first one and most commonly used channel is the procurement of wheat from silos. The alternative to this channel is the procurement of wheat directly from farmers; however this in itself creates challenges and problems in that the incorrect grades of wheat can be delivered by the farmer. There is basically only one procurement channel for flour and that is directly from the miller to the baker. Bakers are therefore dependant on millers to deliver a high quality product on time.

As aforementioned, wheat prices represent the largest part of the input costs in milling wheat to flour. Wheat price volatility therefore can have a big impact on the profitability of the wheat mill business. The same is the case for bakers; flour price volatility will impact on the profitability of the baking business. The perceptions of wheat millers and bakers interviewed on the impact of price volatility of raw materials on the profitability of their business are presented in Figure 54.

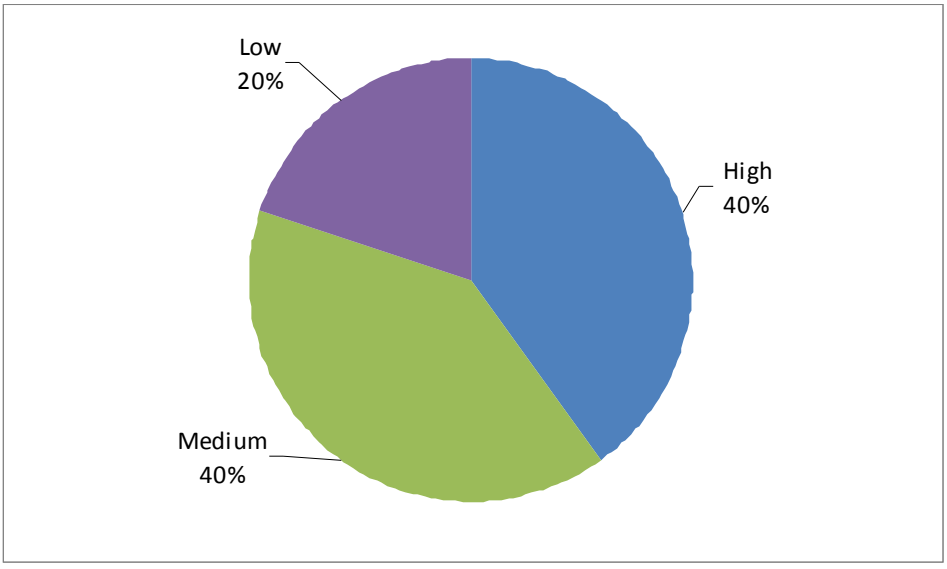


Figure 54: The impact of input price volatility on the profitability of raw materials.

From the figure above it is clear that 40 percent of the respondents indicated that the impact of input price volatility of raw materials on the profitability of their business is high, 40 percent indicated that this impact is medium and the remaining 20 percent indicated that the impact is low.

The majority of the respondents indicating that the impact is high are the small scale wheat millers and bakers. These small scale wheat millers and bakers feel exposed to input price volatility as they do not have the cash flow positions and knowledge to counteract these input price risks by using risk mitigating strategies such as SAFEX. The large scale millers in turn make use of SAFEX as a risk mitigating strategy, some of the large scale millers indicated that around 50 percent of their total wheat procurement is done on a three month SAFEX contract and between 10 and 20 percent of wheat procurement is done on a six month SAFEX contract basis. This ability of large scale wheat millers to mitigate risk on SAFEX creates an advantage for large scale millers over smaller scale millers in that they can offset the input price volatility. This case in point is further emphasised by Figure 55 that indicates the percentage of wheat millers and bakers that acquire raw materials on a contractual basis.

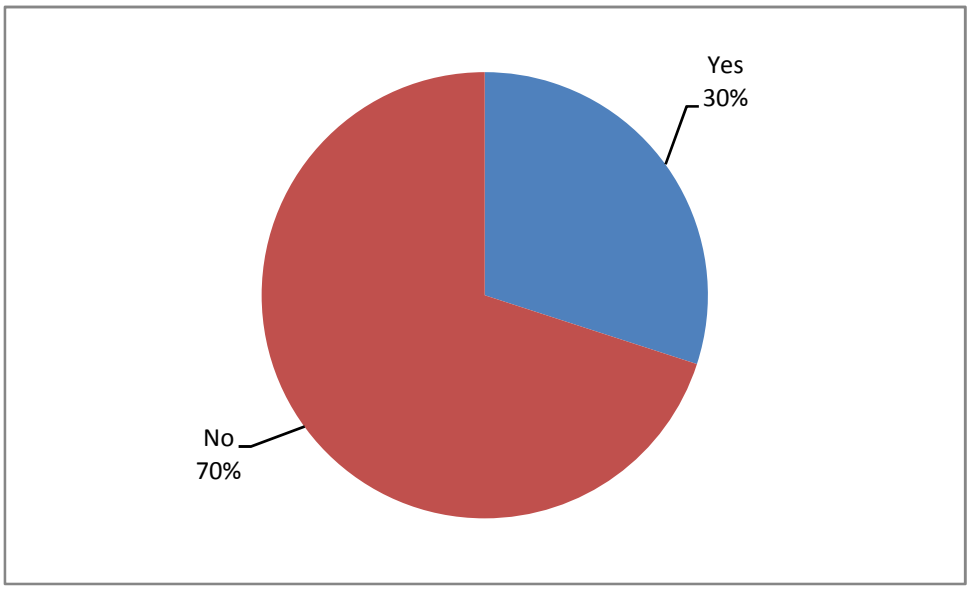
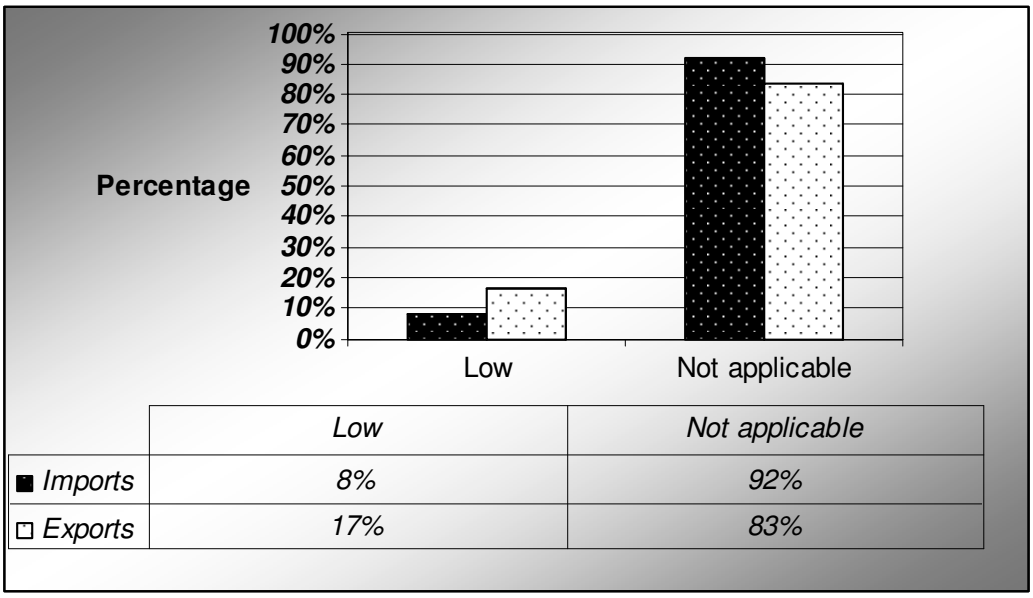


Figure 55: Procurement done on contractual basis

From the figure above it is eminent that only 30 percent of wheat millers and bakers procure wheat and flour on a contractual basis. This contractual basis can include the use of SAFEX or over-the-counter contracts. The majority of respondents indicated that procurement is not done on contractual basis, especially the smaller scale wheat millers and bakers for reason described above.

4.3.8 IMPORTS, EXPORTS OF WHEAT PRODUCTS

The impact of imports and exports on the wheat milling and baking industries are of a small nature. It is however, worth indicating the impact imports and export might have on the milling and baking industries. Almost all of the respondents indicated that imports and exports have no impact on their business environment, while the rest of respondents indicated that the impact of imports and exports is very low on their business. Figure 56 indicates the impact of imports and exports on the various wheat milling and baking businesses as perceived by the interviewees.



	Low	Not applicable
Imports	8%	92%
Exports	17%	83%

Figure 56: The impact of imports and exports on the wheat milling and baking industries

From Figure 56 above, it is clear that 92 percent of respondents indicated that imports have no impact on their business, while 83 percent indicated that there is no impact of exports on their business. It is however worth noting that 8 percent of wheat millers indicated that imports have a low impact on their daily operations. This impact of imports on their business was indicated as indirect, in that they feel that they are more exposed to imports of wheat products from international competitors. The biggest reason given for this impact came in the form of imports of wheat grain. Some of the respondents indicated that they feel the imports of wheat impacts on their business in a negative way as the imported wheat is sometimes not of an acceptable standard. Local wheat production therefore must be supported and protected by either increasing the import tariff or supporting the local production of wheat. The former has since been done.

In terms of exports, 17 percent of the respondents indicated that exports have a low impact on their business. They indicated that they would export their final products should the opportunity present itself but emphasised

that exports are not their core business. They would rather concentrate on local markets and expand where possible.

From the above mentioned it is eminent that imports and exports play a very small role in the daily operations of the wheat milling and baking industries. Local production of wheat must be supported and enhanced to minimise the imports of wheat grain.

4.3.9 RISK MANAGEMENT

As explained in the methodology chapter, risks are divided into a macro and micro level. Risks identified as macro are those risks over which the wheat miller and baker has little or no control. Macro risks are further divided into Political, Economical, Socio-economic, Technological and Environmental risks. Table 21 below identifies risks at a macro level.

Table 21: Risks at a Macro level

Risk	Risk Background
Political Risk	
Change of legal framework	The legal framework in any country depicts the way in which business is done and structured. Changes in legislation impacts any business in a positive or negative way and can ultimately have an impact on investment confidence and profitability.
Changes in government priorities	An established governmental environment is crucial for the sustainability of businesses, any changes in the fiscal and monetary policies and priorities of government can impact on a business or business venture negatively.
Decrease in government spending	A decrease in government spending impacts on the level of demand in the economy negatively - therefore spending by consumers can decrease
Changes in the direct and indirect tax structures.	Changes in a country's tax structures impacts on disposable income of the consumers and businesses and can impact the sales in the wheat milling and baking industry due to lower consumer spending.
Change in subsidies or support by government	Any changes in the support by government to entities that are dependant on subsidies or tariffs can have a negative impact on the profitability of the entity.
AgriBEE	BEE plays an increasing important role in South Africa. Not having competent BEE partners can impact a business negatively.
Education and Training	The success of a business depends on the level of quality of its human capital. A country's inability to maintain a high quality school system creates problems for all businesses in terms of capacity building, service delivery and other aspects of the economy.

Economic Risk	
Globalization	Globalization changed the way in which businesses are conducted. It creates opportunities for business to exploit world markets; however it also created new competition for existing businesses.
Inflation	Inflation can affect a business in many ways. If the cost of inputs increases at a more rapid pace than the business' income, the business will experience a loss in profitability.
Interest rate changes	High interest rates have a negative impact on a company's ability to repay debt or other loan instruments which in turn decreases profitability. It impacts on consumers' disposable income and buying patterns. Also impacts on investments, ROI.
Volatility of exchange rate	Volatility in exchange rates for importing and exporting companies can have a harmful effect on the profitability of the company.
Credit crunch	The current world wide recession and credit crunch impacts on the consumers' perception of the economy, spending patterns, disposable income, employment, etc and this can result in the decrease of demand and investment
FDI (Foreign Direct Investment)	FDI in South Africa is very speculative and short term which creates problems in terms of sustainability of investment which is necessary for businesses to invest longer term.
Changes in international trade structures	The global international trade environment is vibrant and ever changing. Not adjusting to these changes will result in a loss of export opportunities.
Infrastructure	Roads, railroads, harbours, communication, water systems, etc are all required investments by government at a certain standards. If not available or not maintained it impacts negatively on investment confidence.
Economic development	The stage of economic development of a country will determine the products, quality and services that can be marketed.
Urbanization	The migration from rural areas to urban areas changes demand patterns and quantities in both areas hence impacting the sales and profitability of businesses. It also puts pressure on infrastructure and employment.
House and stock market prices	The decline in the prices on the house markets and stock markets impacts the consumer confidence in terms of the economy, consumer disposable income and spending that decreases.
Eskom (load shedding)	Load shedding or the lack of sustainable electricity in South Africa is a reality that creates problems for businesses in terms of service delivery, transportation, communication, etc which in turn has negative impact on profitability.
Socio-Economic risk	
Changes in consumer trends	It is vital for companies to keep up with the ever changing consumer trends in order to ensure competitiveness and sustainable profits. Changes in consumer trends can impact on sales/ profits.
Changes in disposable income	Changes in disposable which can occur due to taxation, interest rates, etc will dampen the consumption expenditure and spending patterns of consumers - demand changes for certain products.

Unemployment	High levels of unemployment in a country/region will decrease disposable income thereby decreasing demand which in turn decreases sales and ultimately profits.
Changing demographics	A decreasing growth rate in a country will affect the speed at which the consumer base grows hence consumer demand will decrease. Changes in the age structure of a country will have implications in terms of spending and saving patterns, which in turn can impact consumer demand negatively or positively.
Infrastructure	Businesses struggle in an environment that lacks a high-quality infrastructure. Not having a world-class infrastructure could also impact on competitiveness.
HIV/Aids	HIV/AIDS provides a serious threat for countries in terms of population growth, lower productivity and lower income levels. It again impacts on the demand for food.
Ethical/religious trends	Ethical or religious trends determine the demand of certain products. A company's should identify such trends and needs.
Security, corruption and theft	Security, corruption and theft presents a wide range of risks for businesses that all conclude in a loss of profit.
Technological Risk	
Lack of new production methods	New production methods (using technology) can increase productivity and decrease cost of production. A company's lack of innovation in terms of production creates a risk in the long run.
Lack of investment in research and development	This results in the lack of innovation for new products and new product development
Environmental Risk	
Water quality & availability	Water of adequate quality is essential for wheat milling and baking businesses. In recent times water has become scarce. It can impact on business profits and confidence.
Pollution	Pollution creates external costs to all businesses. Polluted water for example needs to be purified before use. Polluted water can cause unnecessary risks and higher input costs.
Climatic & natural risk / global warming?	Climatic changes and natural disasters are predicted to increase in future creating uncertainty. This requires more proactive thinking and innovation.
Transport system	The supply chain of wheat products has to be fast and responsive to deliver a product of high quality to markets. Not having a high-quality transport system will hamper these objectives.

Source: Louw (2007)

Having identified the risks at macro level, it is also important to identify risks at a micro level. Micro level risks are those risks that have an impact on the daily operations of the wheat milling and baking industries.

Table 22: Risks at micro level

Risk	Risk Background
Operational Risk	
Loss of market share	Requires meeting & exceeding requirements of all stakeholders at different levels in the value chain.
Stakeholders with different agendas	Lack of alignment in terms of the wheat milling and baking strategic and operational goals. Different stakeholders with different objectives and agendas.
Food safety	An international & domestic requirement. Impacts on business, consumers & suppliers. Requires that necessary control systems are in place.
Systemic risk	The risk that one party involved in the wheat milling and baking industries fail, may lead to the collapse of the entire market. If for example the nearby Silo fails, the wheat milling business that depends on the silo for wheat grain will also fail as it will not have wheat grain to produce flour with.
Machinery break-down	Not having high quality, well maintained, accessible wheat milling machines can effect the profitability of the wheat milling business.
Quality of infrastructure & logistics	The risk of not having a high quality infrastructure at the various wheat milling and baking businesses can lead to a loss in terms of market share, suppliers and customers.
Power outages	Contingency plans need to be implemented in the case of power outages. The business still needs to function as efficiently as possible in the case of load shedding, power outages and power dips.
Employee errors	Well trained employees are required at different levels of value chain in the wheat milling and baking industries. If not available and sustainable, it can impact on reputation risk, etc.
Inventory becoming outdated	The risk of insufficient and inconsistent supply of flour can have a negative impact on the various wheat milling businesses.
Product defects or loss of quality in terms of produce.	The quality of the end product of the businesses must at all times be of a high and consistent standard; the risk of inferior quality will have serious repercussions for the wheat milling and baking industry. Role players must adhere to minimum quality standards.
Security risk	The risk of security and safety at wheat milling and baking businesses plays a vital role in terms of the long term sustainability.

Product Market Risk	
Loss of customers	There is always the risk of losing customers to other wheat milling or baking businesses.
Competition increases	New market entrants in the wheat milling and baking industry. Especially, on farm operations of local farmers that can lead to a risk in terms of a loss of suppliers or customers
Supply decreases	A loss in terms of suppliers of consistent quality & quantity can lead to the industry becoming stagnated and predictable. With the recent increases in production costs, the lack of sufficient supply becomes a reality.
Sudden demand changes	The demand for flour and flour related products can change significantly in a short time period. This creates risk in terms of inadequate supply of products.. For example, the day to day sales of flour and flour related products can change dramatically, one day you will sell one unit of a specific product and the next day you can sell forty units of the same product.
Price volatility	As explained in this study, price volatility can lead to a procurement risk of wheat grain. Large scale millers have the cash flow position to adapt to price volatility, which is an advantage over the smaller millers.
Lack of innovation and differentiation of products	The value adding, processing and branding of all products needs to be in line with the developments and changes of consumer trends – risk of not taking note of the trends..
Mismanagement	Issues of bad leadership, lack of vision, innovation, trust, lack of correct information and payment systems all add to this problem.
Financial risk	
Lack in private sector investment confidence	When financing is required sufficient private sector interest & investment is required. Require a 51:49 financing of expansion. Private sector investment, expertise required.
Interest rate changes	Sudden changes in interest rates create risks in terms of credit repayment, which in turn will have a negative effect for the various wheat milling and baking businesses.
Capital cost changes (interest costs)	Capital cost can change or increase which creates the risk in terms of adequate capital resources necessary to expand.

Default on debt	Depending on financial structuring, default on debt is possible due to the above risks.
Control of overheads	The risk of not controlling overheads can lead to deficiencies in the functioning, service levels, etc of the market.
Cash flow problems	Out of cash or cash flow problems can lead to management problems, payment problems, loss of suppliers, problems with service delivery, security, etc.
Inadequate marketing	The effective marketing of value proposition to the public is critical for the development and sustainability of the various wheat milling and baking businesses.
Input Risk	
Staff skills	The continuous increase in the investment into staff in the milling industry is crucial for capacity building. The employees of the various wheat milling and baking businesses are key to the success of the development and expansion of the industry.
Key employees leave	Contract of key senior management expire simultaneously. Requires effective succession planning.
Import risk	
Consignments not arriving on time	Consignments not arriving on time will create problems in terms of food safety, loss of reputation.
Consignments arriving damaged	Consignments arriving damaged at the final retailer/consumer will result in products with low quality. Negative perceptions are created.
Counterparty risk	The loss that may occur in the event of a failure to honour contractual obligations by counterparty creates risk in terms of future contractual agreements.

Source: Louw (2007)

4.3.10 LEGAL FRAMEWORK IMPACTING THE WHEAT MILLING AND BAKING INDUSTRY

From the outset of the study, emphasis was placed on the legal environment and the impact thereof on the wheat milling and baking industry. Although the majority of interviewees indicated that the impact of the legal framework on the wheat milling and baking industry is on average the same as any other industry, it is worth summarising the legal framework and the impact it potentially can have on the wheat milling and baking industry.

Table 23: Legal framework of the wheat milling and baking industry

Legislation	Definition	Purpose / Impact
Legislation impacting Exporting and Marketing of Fresh Produce		
Agricultural Product Standards Act (119 of 1990) – as amended in 1993	To provide for the control over the sale and export of certain agricultural products and other related products (PPECB, 2007).	The Minister may prohibit the export of products unless each quantity of that product has been approved by the executive officer (PPECB, 2007).
Consumer Protection Bill (B 19 – 2008)	To promote a fair, accessible and sustainable market place for consumer products, to establish national norms and standards relating to consumer protection and to prohibit unfair marketing (DTI, 2008)	This Bill ensures that consumers have access to a fair marketplace, where market information is shared by suppliers and buyers. To enhance the social and economic welfare of consumers (DTI, 2008)
Foodstuffs, cosmetics and disinfectants act (Act no 54 of 1972) (Regulations relating to the fortification and labelling of certain foodstuffs)	Any person who manufactures, imports or sells foodstuffs identified as food vehicles which has not been fortified and labelled in the correct way shall be guilty of an offence (DOH, 2003)	This regulation ensures that the process of food fortification is executed by millers (wheat & maize), as well as to provide guidelines as to the correct procedure of labelling and fortification standards (DOH, 2003)

National Small Business Amendment Act (26 of 2003)	Empower the minister to establish and facilitate an Advisory Body to represent the interest of the small business, to make further provisions in respect of the functions of the Agency and to make the Public Finance Management Act, 1999, applicable to the agency (Gov, 2003A)	The advisory board will and can promote the interest of small businesses within the wheat milling and baking industry (Gov, 2003)
Land reform (Labour Tenants Act) (3 of 1996)	To provide for security of tenure of labour tenants and those people occupying or using land as a result of their association with labour tenants; to provide for the acquisition of land and rights in land by labour tenants (Gov, 1996)	This Act provides security to labour tenants in that no person other than a court order that is just and equitable may evict labour tenants from farms
Agricultural Labour Act (147 of 1993)	To provide for the application of the Labour Relations Act, 1956, and the further application of the Basic Conditions of Employment Act, 1983, to the farming activities and employers and employees engaged therein (Gov, 1993).	This Act states that the Labour relations Act, 1956, and the Basic Conditions of Employment Act, 1983, also has an impact on agriculture and that agricultural entities should take note of these two Acts.
Basic Conditions of Employment Act (75 of 1997)	To give effect to the right to fair labour practices by establishing and making provisions for the regulation of basic conditions of employment (Acts, 1997).	To regulate the right to fair labour practices by establishing and regulating basic conditions of employment.
Broad Based Black Economic Empowerment Act (53 of 2003)	To establish a framework for the promotion of Black Economic Empowerment. Empower the Minister to issue codes of good practices and to establish the Black Economic Empowerment Advisory Council (Gov, 2003B).	The purpose is to promote economic transformation in order to enable meaningful participation of black people, to change the racial composition of ownerships and management structures
Adult Basic Education and Training Act (52 of 2000)	To regulate adult basic education and training; to provide for the establishment, governance and funding of public adult education centres; to provide for the registration of private adult learning centres (Cape Gateway, 2009).	Any person who establishes and maintains a centre at his or her own cost is defined as a private centre. The centre can only be registered if the Head of the Department is satisfied that the necessary criteria are fulfilled.
Compensation for Occupational Injuries and Disease Act (130 of 1993)	To provide for compensation for disablement caused by occupational injuries or diseases sustained by employees in the course of their employment, or for death resulting from such injuries (Gov, 1993).	Management can be held responsible for injuries sustained by employees on duty and may lead to compensation thereof.
Employment Equity Act (55 of 1998)	To provide for employment equity and to provide for matters incidental thereto (ACTS, 1998).	The purpose of the Act is to achieve equity in the workplace by promoting fair treatment in employment and the implementation of affirmative action to redress the disadvantages.

Labour Relations Act (66 of 1995)	To regulate the organisational rights of trade unions, to promote collective bargaining at the workplace. To regulate the right to strike and to promote employee participation in decision-making and to provide simple procedures of labour disputes (Gov, 1995)	To advance economic development, social justice, labour peace and democratisation of the workplace.
Occupational Health and Safety Act (85 of 1993)	To provide for heath and safety of persons at work, the protection of persons other than persons at work against hazards to health arising in connection with persons at work (Gov, 1993).	Every employer shall provide and maintain, as far as possible, a working environment that is safe and without risk to the health of his employees
Prevention of Illegal Eviction and Unlawful Occupational of Land Act (19 of 1998)	The prohibition of unlawful eviction and to provide procedures for the eviction of unlawful occupiers (Gov, 1998A).	No person may directly or indirectly permit a person to occupy land without the consent of the owner of the land.
Skills Development Act (97 of 1998)	To provide a framework to implement national, sector and workplace strategies to develop and improve the skills of the workforce; to provide for financing of skills development by means of a levy-grant scheme and a national skills fund (Gov, 1998B).	The purpose of the Act is to develop the skills of the workforce, to increase the level of investment in education, to encourage workers to participate in training programmes and to improve the prospects of disadvantaged employers

In discussing the legal framework that impacts the wheat milling industry, one specific act was mentioned on a continuous basis by wheat millers and bakers and had a two-fold impact on these industries. The act is the Foodstuffs, cosmetics and disinfectants act (Act no 54 of 1972), and has regulations relating to the fortification of certain foodstuffs as well as the newly revised labelling regulation imposed by the Department of Health. This act provides guidelines and principles on the correct procedure and standards, in terms of the fortification and labelling process of foodstuffs that must be executed by millers in South Africa. This act creates problems and issues within the wheat milling industry. The most important issue is that small wheat millers feel that this act increases the barrier to entry of the industry, as it causes a great amount of unnecessary costs. This act is supported by the National Chamber of Milling, which in turn represents the large scale millers of South Africa. This creates an advantage for large scale millers over small scale millers. According to the National Chamber of milling, this has changed over the past few years. The National Chamber of Milling at present has more members who are small scale millers and bakers than those who are large scale millers and bakers. Bakers in turn also expressed their concerned about the labelling regulation and also feel that the input costs in producing a loaf of bread are increased by the added regulation in terms of labelling the bread product.

4.3.11 SUPPORT STRUCTURES OF THE GOVERNMENT AND DTI

The Department of Trade and Industry (**the Dti**) launched a new incentive programme called the Manufacturing Investment Programme (MIP) which commenced in 2008 and will end in 2014. The objectives of the MIP are to stimulate much needed investment within the manufacturing industry, while further aiming to enhance the sustainability of manufacturing investment projects by small enterprises and to support large-to-medium scale projects in manufacturing that would not have been established without a grant. The MIP forms part of the Industrial Policy Action Plan. The incentive programme supports both local and foreign owned entities by offering an investment grant of up to 30 percent. The qualifying investment costs include machinery, equipment, land and buildings and commercial vehicles. The investment grant can be summarised as follows (DTI, 2009):

- Investment projects of R5 million and below may qualify for an investment grant of up to 30 percent of the total investment costs.
- Investment projects above R5 million may qualify for an investment grant of between 15 percent and 30 percent of the total investment costs payable over a two year period.
- Foreign investment projects may qualify for an additional grant for the cost of transporting their machinery and equipment to South Africa.

To qualify for the MIP, projects are assessed to determine their importance to **the Dti**'s priority sectors, job creation, Broad Based Black Economic Empowerment (BBBEE) as well as location in areas of high unemployment. This programme will aid wheat millers with the investment costs. This is much needed assistance for new entrants in the wheat milling and baking industry and helps towards long term sustainability (DTI, 2009). To date, a limited number of millers have qualified for the programme as credit conditions from commercial banks are currently very stringent.

4.4 PERFORMANCE OF WHEAT MILLERS AND BAKERS

The performance of the wheat millers and bakers is shown by an analysis of the finance performance of wheat millers and bakers. This financial performance of wheat millers and bakers will include their perception on how their turnover of the past five was and what impact increases in costs have on their respective business.

4.4.1 FINANCIAL PERFORMANCE OF WHEAT MILLERS AND BAKERS

Evaluating the financial performance of wheat millers and bakers will provide valuable insight into the ability of

the existing wheat millers and bakers to be sustainable. In order to capture the financial performance of wheat millers and bakers, the perceptions of the existing wheat millers and bakers on their turnover performance over the past five years was evaluated. Respondents were asked to indicate on a scale of very good, good, average, bad and very bad how they performed over the past five years. Figure 57 below indicates the perception of existing wheat millers and bakers on how their turnover performed over the past five years.

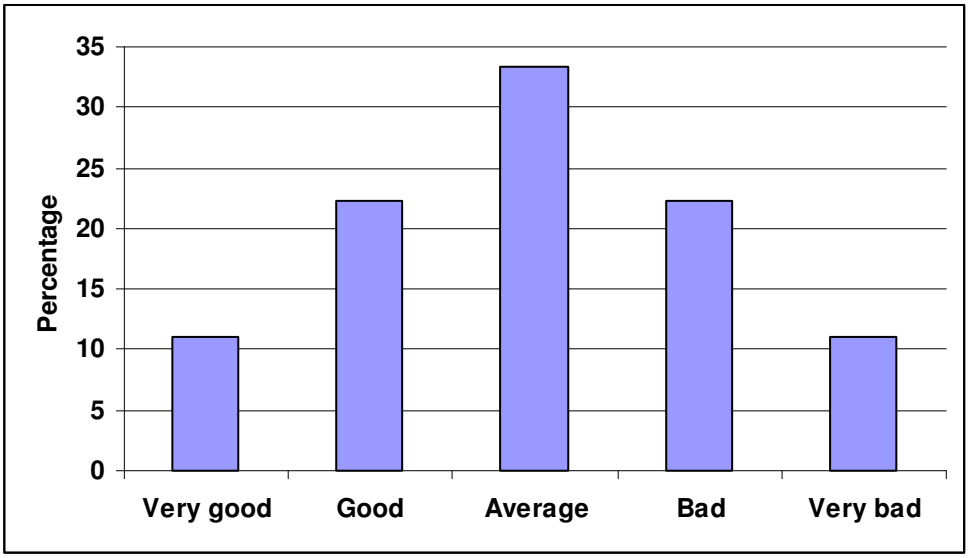


Figure 57: The perception of turnover over the past five years

Figure 57 shows an interesting occurrence on the perception of wheat millers and bakers on their turnover over the past five years. The figure indicates a clear bell shaped phenomenon, illustrating that for some wheat millers and bakers, their turnover was very good while for others it was very bad. Approximately 34 percent of respondents indicated that their financial performance over the past five years was average. Out of all the respondents, another 33 percent indicated that their respective turnover over the past five years was above average. Out of this 33 percent, 11 percent indicated that their turnover was very good, while 22 percent indicated that their turnover was good. It is worth noting that this proportion of wheat millers and bakers was represented by small, medium and large scale wheat millers and bakers, indicating that there is room in the market for different size and scale wheat millers and bakers. The key lies in identifying new market opportunities and fully exploiting the opportunity. The last bracket of wheat millers and bakers were represented by 33 percent of respondents. This bracket of wheat millers and bakers indicated that their turnover over the past five years was below average and that they have experienced a drop in sales over the past few years. Out of this 33 percent, 22 percent indicated that their turnover performed badly, while 11 percent indicated that it performed very badly. It is however, interesting to note that this bracket of respondents was solely represented by small scale wheat millers. This indicates that the financial performance of large scale wheat millers and bakers are superior to smaller scale wheat millers and bakers. Smaller scale wheat

millers and bakers therefore need more support from **the Dti** and government institutions that will aid in the sustainability of smaller scale wheat millers and bakers.

4.4.2 THE IMPACT OF INCREASES IN INPUT COSTS ON WHEAT MILLERS AND BAKERS

After discussing the perception of wheat millers and bakers, it is only normal to analyse the perception of wheat millers and bakers on the impact of increases in input costs on their respective businesses. Increases of input costs in today's business environment is a given and requires a business to be as adaptable to changes as possible to minimise the impact on the business. Increases in input costs in today's milling and baking business environment include electricity prices, fuel prices, packaging material costs, labour costs, and logistics costs. This section is dedicated to the perception of existing wheat millers and bakers on the impact of increases in input costs on their respective businesses. Respondents were asked to indicate whether they feel the impact is dramatic, significant, average or no impact. Figure 58 below clearly indicates this perception of existing wheat millers and bakers.

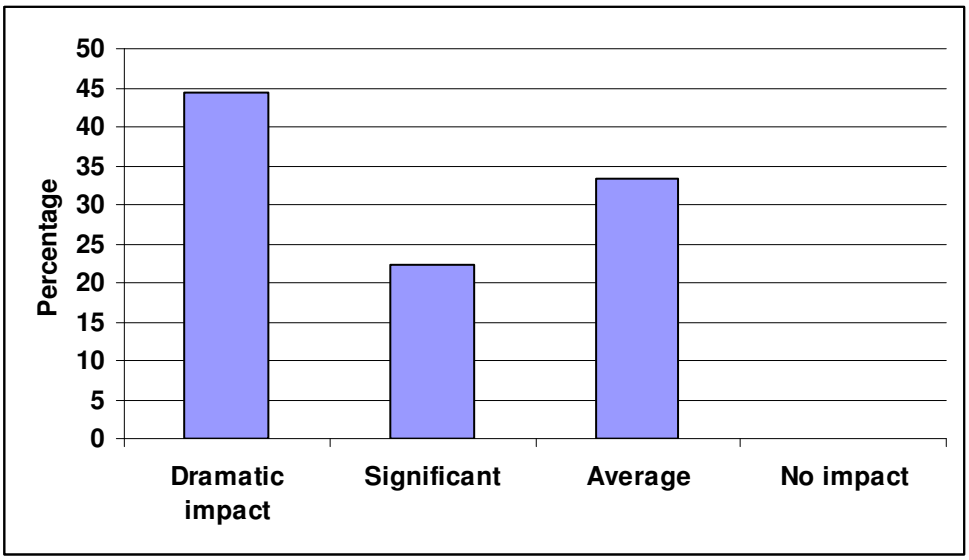


Figure 58: The perceived impact of increases in input costs on milling and baking businesses

From the figure above, it is notable that the majority of wheat millers and bakers feel that the impact of increases in input costs on their respective businesses is dramatic. Out of all the respondents, 44 percent indicated that there is a dramatic impact on their business if input costs increase. The majority of wheat millers and bakers in this bracket were represented by small scale wheat millers and bakers. Smaller scale wheat millers and bakers are more exposed to changes in input costs as they do not have the necessary skills and capital to mitigate this risk fully. They are vulnerable to changes in input costs. Another 23 percent of respondents indicated that the impact of increases in input costs is significant on their business. This bracket

again was represented by small and intermediate wheat millers and bakers, stressing the vulnerability of smaller scale wheat millers and bakers to an increase in input costs. The last 33 percent of respondents indicated that the impact of increases in input costs are on average the same as any other business venture and that the key to success lies in adapting quickly to changes in input costs.

It can therefore be concluded that the smaller scale wheat millers and bakers are more exposed to input cost increases and feel that this has a dramatic impact on their respective businesses. This problem arises from smaller scale wheat millers and bakers inability to off-set this risk with proper risk mitigating strategies as they do not have the necessary capital and skills. Large scale wheat millers and bakers have in this a big advantage over smaller scale wheat millers and bakers as they hire the necessary skills to off-set this risk with their available capital.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSION OF THE STUDY

The main purpose of the study was to identify factors that restrict the development of the wheat milling and baking industry. In order to conduct a proper study that adds value to various stake-holders within the industries, various objectives and questions were addressed and a detailed analysis of the results was performed. The objectives of the study can be summarised as follows.

- Report on previous studies conducted in South Africa on the wheat milling and agro-processing industry
- Identify the critical success factors of current wheat millers
- Analyse the wheat supply chain to understand the shorter and longer term issues in the sub-sector that influence the effective establishment of agro-processing industries in rural areas.
- Determine the impact of input price volatility on the profit margins of the smaller commercial mills
- Identify factors that restrict and/or enhance the competitiveness and profitability of smaller commercial mills.
- Identify the use of any risk mitigation strategies such as hedging, storage and branding applied by the smaller commercial mills.
- Establish protocols within support structures that can assist in the development and sustainability of agro-processing industries in the rural areas.
- To unpack the governance/business models of successful smaller mills; looking specifically at contractual arrangements, hedging, infrastructure, and marketing strategies.
- Analyse the barriers to entry and barriers to exit.
- Analyse the power relations between the players, if any, with special emphasis on smaller commercial mills and bakeries.
- Determine the impact of imports and exports of raw materials as well as the manufactured products.
- Analyse whether the current support measures provided by **the Dti** are applicable to the agro-processing sector and to make recommendations on how such support measures can be adapted or improved if needed.
- Make recommendations on key issues identified in the study.

The main purpose of the literature review section was to clearly demonstrate that the study will add to the existing body of knowledge on factors that restrict agro-processing development. After a detailed literature review it can be concluded that no study of this nature has been performed yet. The literature review did however identify studies conducted on the wheat milling and baking industries. However, the purposes of these studies differed vastly from the conducted study. The only resemblance found between previously

conducted studies on wheat millers and this study was the SWOT analysis that was performed. An effort was made, to clearly demonstrate differences found between the SWOT analysis of previous studies and this study. It can therefore be concluded that the study to determine factors that restricts development in the wheat milling and baking industries will add value to various stake-holders within these industries.

From the outset of the study it was clear that conducting research within the wheat milling and baking industries would be difficult. Due to the lack of information sharing and finding wheat millers and bakers that were willing to provide information proved arduous following the investigations by the Competition Commission. The National Chamber of Milling could not provide access to the industry statistics on their website during the period of the study. It is important to note that this problem of information sharing was also a problem before the investigations by the Competition Commission. The Department of Health (2007) did a study on the fortification programme in South Africa and stated that "…many small scale millers did not want to be found. Many of them also did not want to make themselves available to talk to strangers…". This clearly indicates that information sharing and data collection within the wheat milling and baking industries is a problem and needs to be addressed. Research and development is the cornerstone of any expansion and growth in any industry and an effort must be made in making information and data easily accessible.

The study conducted an extensive market overview on the wheat industry and was divided into a global wheat overview, a Southern African Development Community (SADC) overview and a South Africa overview. Production levels, consumption levels, stock levels and import and export levels as well as an overview of the milling industry and current issues and challenges was discussed in detail. One of the objectives of the study was to analyse the wheat supply chain which was done in the South African wheat market overview. The objective of analysing the wheat supply chain was to understand the linkages associated with the wheat industry in order to conduct an accurate and precise study. It can be concluded that the market overview of the wheat industry on a global, SADC and South African basis did provide valuable insight into the current production and consumption trends. From these trends, a more precise and concentrated study was conducted to identify the factors that limit agro-processing development in the wheat milling industry in the rural areas.

In order to identify factors that restrict development in the wheat milling and baking industries, one of the objectives of the study was to identify critical success factors/areas of current wheat millers and bakers. The analysis of the critical success factors/areas of current wheat millers and bakers provided valuable insight into the areas of a wheat milling and baking businesses that must be successful in order to grow the business. The study identified ten critical areas. The most important area identified was establishing a well defined market (end consumer). Respondents stressed the value of defining a market more and identified that this is the first

crucial step in setting-up your business for success. Other critical areas of a wheat milling and baking business included, amongst other things, the effective management of the respective cash flow, knowledge and know-how of wheat milling and baking and the effective management of input costs.

As mentioned, it is crucial to manage input costs as effectively as possible. The study aimed to determine the impact of input cost price volatility on the profitability of smaller scale wheat millers and bakers. Out of all the respondents, 44 percent indicated that the input cost price volatility had a dramatic impact on their profitability. It is important to note that the majority of the wheat millers and bakers that indicated this dramatic impact were smaller scale wheat millers and bakers. Smaller scale wheat millers and bakers are more exposed to input cost price volatility as they do not have the necessary skills and cash flow to make use of risk mitigating strategies. The large scale wheat millers and bakers definitely have an advantage over the smaller scale wheat millers and bakers in this regard.

A factor that clearly restricts development is the lack of government support in terms of the quality of infrastructure and the grants that government provide. Many respondents expressed their concern over the quality of infrastructure which affects their business. For many small scale wheat millers, service delivery is the cornerstone of their business. Not having access to a proper maintained surrounding infrastructure incurs unnecessary costs, decreasing the profitability of smaller scale wheat millers and bakers. For smaller scale wheat millers and bakers, sustainability equals profitability. It is worth mentioning that electricity prices and supply were specifically mentioned by wheat millers and bakers. Government grants was another specifically mentioned issue that wheat millers and bakers felt hampered their prospects to expand. Expansion and start-up operations require capital. Many small scale wheat millers and bakers expressed their concern over the length of time it takes to qualify for the much needed grants and it takes several years before funds are made available. Small scale wheat millers and bakers are then discouraged.

The wheat milling and baking industry is exposed to a number of risks. These risks can potentially restrict development in the industry. The quality of the surrounding infrastructure and electricity supply and prices are factors that restrict development as does the already mentioned micro-level risks. Other risks identified by wheat millers and bakers included theft on-site, default on debt and the level of staff skills. All of these risks incur unnecessary costs to smaller scale wheat millers and bakers. Theft on-site requires additional measures and costs. Default on debt is another serious risk that impacts specifically smaller scale wheat millers and bakers. The wheat milling and baking industry is cash flow driven, with sales being done on a cash basis. One specific problem, especially in rural areas, is the lack of motivated and skilled labourers. On the issue of obtaining a skilled labour force, the National Chamber of Milling expressed their disappointment on the level to which government training authorities were involved in the facilitating and training in the food and beverage

manufacturing sector. They are of the opinion that much more needs to be done (National Chamber of Milling, 2010).

The major difference between smaller scale wheat millers and bakers and their larger scale counterparts are the large scale millers' and bakers' ability to handle price volatility with the correct risk mitigating strategies. Smaller scale millers and bakers do not have the necessary skills and capital to make use of SAFEX as a risk mitigating strategy. This creates a situation where if wheat prices increase suddenly, small scale wheat millers have to procure wheat at a higher price than their large scale counterparts which hedge wheat prices on SAFEX. In other words, small scale wheat millers buy at a higher price than larger scale wheat millers, thereby decreasing their profit margins. In an industry that is characterised by high volume output and low margins decreases in profit margins are detrimental to the business. However, the opposite is also true that small scale wheat millers benefit from a decreasing wheat price. Nevertheless, price volatility has a bigger impact on smaller scale wheat millers and bakers than on their larger scale counterparts.

One of the cornerstone objectives of the study was to identify barriers to entry and exit that exists in the industry. These barriers to entries are possible factors that restrict development in the wheat milling and baking industries. Some of the barriers to entry identified were described in the above section. These barriers include capital requirements, establishing a market, cash flow management and hiring motivated and skilled labourers. Respondents also indicated that sound business knowledge was important that will ensure them to take advantage of opportunities, to successfully manage their cash flow positions, procurement and marketing campaigns.

The FPMC (2003) reported that approximately 80 percent of bread production is produced by six large baking groups. The top four wheat milling companies have approximately 87 percent of the milling markets, according to FPMC (2003). In terms of power relations between role-players, it can be concluded that the wheat milling and baking industry is highly concentrated with the four largest milling and six baking companies dominating the market. These large milling and baking companies furthermore have a high level of vertical integration. Retailers on the other hand also have a relative high market power. The downside to this is that the barriers to entry are increased with this high level of market concentration and vertical integration for smaller scale wheat millers and bakers.

To conclude, the wheat milling industry is a high volume output, low profit margin industry. The days are long gone that only one final product be produced in a business. In order to survive, a wheat miller must expand by adding value to the product this can be done by establishing a bakery, while a baker must develop his business into a one-stop shopping experience for customers.

5.2 RECOMMENDATIONS OF THE STUDY

Having done a proper study, some recommendations can be made on how to develop the wheat milling and baking industry, with specific emphasis on the smaller scale wheat miller and baker. Some of the recommendations are beyond the control of the wheat milling and baking industries. These recommendations will be classified as general recommendations. However, there are also specific recommendations that can be resolved by the industry.

5.2.1 GENERAL RECOMMENDATIONS

An important finding of the study was that the wheat milling and baking industries lack of information sharing which would ensure more accurate information was available. From the viewpoint of the study, this lack of information sharing was mainly attributed to the investigation by the Competition Commission into these industries. The Competition Commission should ensure that the industry, which in principle is in favour of what the Commission does, plays the role of a fair watch dog that protects businesses and prosecutes guilty parties. There is a trend that businesses do not want to share information in fear of potential action by the Competition Commission. Clear rules of the game regarding exchange of information at various levels are required. The Competition Commission should establish a business environment where information can be shared freely. This will increase the wheat milling industry's potential to develop and compete freely. Although some information by these industries are confidential in nature, some guidelines must be established in order to be able to setup a benchmark. The industry must make information available in order to determine stock, supply and demand levels, in order to make the correct policy decisions.

The low quality of infrastructure was mentioned on a continuous basis by respondents and indicated there are unnecessary high costs incurred due to the low quality infrastructure. Government should upgrade the infrastructure especially in rural areas. Another major point of concern in these industries is the high level of theft and crime taking place on and around the premises of wheat millers and bakers. As mentioned, unnecessary time, costs and efforts are incurred due to the level of crime and theft. An active step by government and local communities must be taken, especially in rural areas, in order to combat crime.

In the end, large scale wheat millers and bakers have a larger buffer over their smaller scale counterparts to overcome these infrastructure and theft issues. By alleviating these issues on a national level it would make it easier for smaller scale wheat millers and bakers to survive and to do business. Development of wheat milling and baking in rural areas is difficult if no support structures exist.

5.2.2 SPECIFIC RECOMMENDATIONS

The study was complicated by the fact that finding small scale wheat millers that are still in business and mill wheat on a daily basis was difficult. This in itself restricts agro-processing development as wheat mill owners are not supported by any institution and little information is available. According to SAGIS, any business that stores grain at silos and adds value to grain products must be registered at SAGIS. SAGIS can contribute to the milling and baking industries by issuing reports and releasing information and statistics on the current state of small scale wheat millers and bakers in South Africa on a periodic basis. Having said this, SAGIS provides the industry with valuable information on food safety issues, etc (National Chamber of Milling, 2010). The National Chamber of Milling and the South African Chamber of Baking on the other hand must make it more attractive for smaller scale wheat millers and bakers to become a registered member on their respective membership lists. The registration of small scale wheat mill businesses at these organisations will provide small scale wheat millers with a voice to discuss the various issues and challenges they experience in the industry with government. Having said this, smaller scale wheat millers and bakers are sometimes not interested to register at these organisations as they perceive that the fees are high and they feel that it is off little value. According to the National Chamber of Milling, the fees are not high. Some of the smallest scale wheat mill members only pay R80 membership fee per month and the smallest scale baker around R375 per month (National Chamber of Milling, 2010).

As mentioned above, capital requirements in the wheat milling and baking industries are important in starting operations. Many wheat millers and bakers depend on grants by government making the necessary capital available. The study found that the process in making funds available can take several years. This process of making funds available must be speedier, with funds made available within in a reasonable amount of time.

The lack of motivated and skilled labourers was indicated by respondents as a serious issue within the industry. The perception of the industry is that the National Chamber of Milling should offer more programmes that provide labourers with the necessary skills to excel in the industry. There are however, skills development programmes that the National Chamber of milling and the South African Chamber of baking arrange. Current wheat millers and bakers should be made aware of these courses that are available. As mentioned, the National Chamber of Milling expressed their disappointment in the level in which government training authorities was involved in facilitating and training within the industry (National Chamber of Milling, 2010).

The industry has a number of risks that impact on the daily operations of wheat millers and bakers. Again, large scale wheat millers and bakers have an edge over their smaller scale counterparts as they have a larger

reserves and economies of scale to overcome these risks. A strategy is required to mitigate these risks as it can save smaller scale wheat millers and bakers costs.

Smaller scale wheat millers and bakers should improve their level of skills, knowledge and cash flow to overcome obstacles in a short period of time. They can take several months to recuperate proving sometimes to be detrimental to the business. The factors identified by the study that restrict development must be resolved in order for smaller scale wheat millers and bakers to have a fair chance of survival.

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