AN ANALYSIS OF THE COMPETITIVENESS OF THE SOUTH AFRICAN SUNFLOWER INDUSTRY

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M.Agric (UFS)

Submitted in partial fulfillment of the requirements for the degree of

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Jaco Dennis

November 2011

DECLARATION

I, Hendrik Jacobus Dennis (ID: 750511 5024 086), hereby declare that:

This work has not previously been accepted in substance for any degree, and is not concurrently submitted in candidature for any degree.

This dissertation is submitted in partial fulfillment of the requirements for the degree of Masters in Business Administration in the School of Business Management of the Faculty of Economic and Management Science, North-West University, Potchefstroom

This study is the result of my own independent work, except where otherwise stated. A bibliography is appended.

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ABSTRACT

This study provides an overview of the sunflower seed industry, globally and locally. This overview is, followed by measurements of the comparative and competitive advantages of the South African and Argentinean sunflower seed industries. Two indexes are used to calculate the comparative and competitive advantages namely the Revealed Comparative Advantage (RCA) and the Relative Revealed Comparative Trade Advantage (RTA) index. The results show that South African sunflower seed has a competitive advantage in their primary form, however the value added sunflower seed products show a competitive disadvantage which is opposite to that of Argentina's sunflower seed products.

The finding that South Africa is only competitive in the primary sunflower seed market was calculated by means of trade data. Factors that affect the competitiveness of the sunflower industry were identified to indicate why value added sunflower seed products experience a competitive disadvantage. In the analysis it was found that the South African sunflower industry is price driven. Since price plays an important role in the competitiveness of the industry, imports of cheaper sunflower crude and refined oils are considered to pose a major threat to the industry. Crushing margins has increased over the last few years due to higher sunflower oil and sunflower oilcake prices.

In order to increase the competitiveness of the South African sunflower seed industry, it needs to; be more cost competitive; improve quality; launch new products; invest in new technologies and improve the innovativeness. Emphasis should be placed on the value added seed products as this is where South Africa has a competitive disadvantage. Health issues are of great importance to the local as well as global market and the production of a healthier vegetable oil has become a necessity for this industry.

Innovation in this commodity will lead to great improvement in the competitiveness of the sunflower seed industry. Investment towards research and innovation is necessary in order to keep up with the changing environment. The competitiveness of the sunflower seed industry in South Africa cannot be achieved without the help of the government. Policy issues must be put in place to avoid the dumping of cheaper crude vegetable oils as well as bottled cooking oils in South Africa.

ANALISE VAN DIE MEDEDINGENDHEID VAN DIE SUID-AFRIKAANSE SONNEBLOM BEDRYF

deur

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SAMEVATTING

'n Oorsig van die internasionale en plaaslike sonneblom bedryf, word verskaf: Dit word gevolg deur 'n meting van die vergelykende en mededingendheid voordeel van die Suid-Afrikaanse en Argentynse sonneblom industrieë. Twee indekse word gebruik om die vergelykende en mededingende voordele te bereken, naamlik die blootgestelde vergelykende voordele indeks en die relatiewe blootgestelde vergelykende handelsvoordeel indeks. Die resultate dui daarop dat sonneblomsaad in die primêre vorm 'n mededingendheid voordeel het, hoewel die waarde toegevoegde sonneblomsaad produkte toon in meeste van die gevalle nie mededingend nie. Die Argentynse sonneblom industrie ervaar presies die teenoorgestelde.

Daar is bevind dat Suid-Afrika slegs mededingend is in die primêre sonneblommark. Faktore wat die mededingendheid van die Suid-Afrikaanse sonneblombedryf beïnvloed is geïdentifiseer om uit te wys hoekom die waarde toegevoegde sonneblomsaad produkte nie mededingendheid ervaar het in Suid-Afrika. In die studie is gevind dat die sonneblom industrie prysgedrewe is. Omdat prys ‘n groot rol speel in die mededingendheid van die sonneblom industrie, word die invoer van ru-olie, verfynde olies en gebottelde olies as ‘n groot bedreiging beskou. Uit die resultate van die studie is dit duidelik dat pers marges verhoog het oor die laaste paar jaar as gevolg van hoër sonneblom olie en oliekoek pryse.

Om die Suid-Afrikaanse sonneblom industrie meer mededingend te maak is dit nodig om meer koste-effektief, verbeterde kwaliteit, nuwe produkte, investering in nuwe tegnologie en innovasie ten opsigte van sonneblomolie wat aanleiding gee tot ’n aansienlike verbetering ten opsigte van die mededingendheid van die sonneblom bedryf. Omdat Suid-Afrika nie mededingend is ten opsigte van die meeste waardetoegevoegde sonneblomsaad produkte nie, moet hierdie aspek beklemtoon word. Gesondheids faktore is baie belangrik, in sowel die plaaslike as die internasionale mark, en die produksie van ‘n gesonder olie is van kardinale belang. Investering in navorsing en innovasie is noodsaaklik om in beheer te bly van 'n veranderende omgewing. Die bogenoemde kan slegs slaag met die regering se hulp. Beleid teen die storting van plant ru-olies, verfynde olies en gebottelde kook olies in Suid-Afrika moet ingestel en toegepas word.

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LIST OF ABBREVIATIONS

AFMA.....	Animal Feed Manufactures Association
DAFF.....	Department of Agriculture, Forestry and Fisheries
FAO.....	Food and Agriculture Organisation
FPMC.....	Food Pricing Monitoring Committee
GSA.....	Grain South Africa
ISMEA.....	Institute for Studies Information and Researches on Agri-Food Market
NAMC.....	National Agricultural Marketing Council
RCA.....	Revealed Comparative Advantage
RTA.....	Relative Comparative Trade Advantage
SADC.....	Southern African Development Community
SAFEX.....	South African Agricultural Future Exchange
SAGIS.....	South African Grain Information Service
SAOPA.....	South African Oil Processors Association
TIPS.....	Trade and Industrial Policy Strategies
USDA.....	United States Department of Agriculture

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Sunflower seed contributed approximately R 1.4 billion per annum during the last ten years to the total gross value of production of agricultural commodities in South Africa (DAFF, 2011: 204). According to Van Schalkwyk *et al.* (2003: 1), sunflower seed are not only important in regards to the contribution it makes to the gross value of production of agricultural commodities, but also in terms of its value in the value-adding system of other commodities.

Given the above-mentioned, the competitiveness of the sunflower industry in South Africa is still a concern. In South Africa sunflower seed production is the third largest grain crop produced after maize and wheat (GSA, 2010). The climatic conditions in South African is highly suitable for sunflower seed production, this is mainly due to the fact that the growing season of the sunflower is short. Because the sunflower plant has a high drought tolerance, it can serve as an ideal alternative crop on low potential soils and it can also serve as an alternative crop when it is too late in the growing season to plant maize. The North West and Free State provinces produce a significant amount (85%) of the total sunflower seed crop in South Africa. For the period from 2000 to 2009, an average of approximately 682 000 tonnes of sunflower seed was produced in South Africa annually (DAFF, 2010: 205).

Sunflower seed is primarily used for the manufacturing of sunflower oil which is used on a daily basis in households, restaurants and various other food industries. An important by-product from the crushing activity process from sunflower seed is oilcake which is commonly used in the animal feed industry (DAFF, 2011: 220). Of the sunflower seed produced in South Africa 95 % is destined for the processing industry for the production of sunflower oil and feed manufacturers. The total demand for sunflower seed, derived from the total demand of sunflower oil, has

increased to over 1 million tonnes which makes South Africa a net importer of sunflower oil (FPMC, 2003: 231).

The price of sunflower seed is determined by domestic demand and supply factors, as well as demand and supply situations in the international market. The international vegetable oil price acts as a guideline for domestic seed and oil prices. The position of the Argentinean oil market has a significant impact on the domestic market since the Argentinean oil market has the same marketing window or production season than that of South African sunflower seed producers (FPMC, 2003: 236).

In this study the competitiveness of the South African sunflower seed industry is investigated. The comparative advantage and international competitiveness of the sunflower industry is determined. A value chain analysis of the sunflower seed industry is discussed and factors that have an effect on competitiveness are evaluated.

1.2 PROBLEM STATEMENT AND MOTIVATION

Given the aforementioned background on the South African sunflower seed industry, it is evident that the micro and macro-economic variables have a direct impact on the industry. The deregulation of the grain industry and the abolishment the Marketing Board in 1996, has changed the concept of competitiveness radically in South Africa. The deregulation and changes in global markets for agricultural products forces producers and processors to position themselves as capable competitors in a global free market environment. The emphasis of trade liberisation in primary and processed products has increased over the last decade. South Africa's foreign competitors have high levels of government subsidies and protection measures, which is putting South African producers and processors at a definite disadvantage (Hallat, 2005: 2).

By analysing the competitiveness of the value chain of the South African sunflower seed industry it can be determined whether the industry can compete in the global market. The analysis will identify the different role players within the sunflower seed industry in the country. Factors influencing the sunflower seed industry are identified

to determine the ability and willingness of each section of the value chain to adapt to market changes and its capacity to retain and increase its market share. Value chain analysis can be a very useful conceptual tool when measuring and evaluating the efficiency, effectiveness, profitability and sustainability of the sunflower seed industry. Measuring the relative competitiveness and the comparative advantage of an industry will also give a good indication of the success in the value chain.

The results obtained through this study can be used for strategic planning by various role players in the value chain of the South African sunflower seed industry. By analysing the value chain, inefficiencies and weaknesses in the value chain can be identified. According to Van Rooyen *et al.* (1999: 2) challenge of global competition and the satisfaction of local demand are elements that could provide competitive advantage.

To compete in a global economy farmers and agribusinesses will have to be competitive in a value chain including producers, processors and refineries. It is not good enough for farmers to be able to compete at farm gate level, while the locally processed commodity which is sold to the consumer, is not competitive in the world market. To improve the competitiveness of the sunflower seed value chain new innovative strategies should be implemented. Within the whole sunflower seed value chain there is only a certain value of profit margin available. This margin is calculated as the final price the customer pays minus the sum of all costs incurred with the production and delivery of the product. It depends on the market position and negotiating power how this margin spreads across the role-players (producers, crushers, refineries and wholesaler) of the sunflower seed value chain. Due to the dynamic nature of the agricultural sector and complexity of the oilseed industry role players within the value chain need comprehensive insight to understand the impact of macro and micro-economic changes on the sunflower seed industry to use its market position and negotiating power to get a higher proportion of the profit margin. The real measure of the value chain success is how well activities are coordinated to create value for consumers while, at the same time, increasing profitability of every section in the value chain from seed to end user (Wysocki, 2000: 53).

In this study the measuring of competitiveness of the sunflower seed industry is based on two methods based on a study by the Institute for Studies Information and

Researches on Agri-Food Market (ISMEA) (ISMEA, 1999: 7). The two methods were prioritised to determine the competitiveness of the European Union food chains in a global environment. These approaches include the approach of the study of competition originated by Porter (1990) and the competitiveness indicators as originally developed by Balassa (1977, 1986).

1.3 OBJECTIVES OF STUDY

The primary objective of this study is to investigate the competitiveness of the South African sunflower seed industry by means of determining the relative competitiveness and a detailed investigation into the value chain of sunflower seed industry in the country. The value chain analysis includes all the sectors in the value chain from primary producer to the crushers of sunflower oil and refineries. In order to achieve the primary objective several secondary objectives need to be met, namely:

- Obtain an overview of the current production and trade situation of sunflower seed globally and in South Africa.
- Analyse the comparative and competitive advantage of the sunflower industry in South Africa.
- Analyse the sunflower seed value chain.
- Determining the gross margins of the sunflower seed producers, crushers and refineries.
- Identifying the factors which influence the competitiveness of the sunflower seed industry.
- Make recommendations in terms of how the competitiveness of the South African sunflower industry can be improved.

1.4 RESEARCH METHODOLOGY

The comparative advantage and competitive advantage of the South African sunflower seed industry is measured by applying two indexes the: Revealed Comparative Advantage (RCA) and the Relative Revealed Comparative Trade Advantage (RTA) index.

In this study data is collected through a literature review of previous academic research done internationally and locally and personal interviews with South African oilseed crushers and refineries.

In the analysis, the cost of production of sunflower seed in South Africa was obtained from production cost figures published by Grain South Africa (GSA). The farm gate price is derived from South African Agricultural Future Exchange (SAFEX) average nearby future contract price, lagged by three months. According to Van Rooyen *et al.* (1999: 6) statistical tests proved that the level of correlation between the SAFEX price of sunflower seed and consumer price of sunflower oil is the highest when the SAFEX price is lagged by three months. The sunflower seed producer price is derived from the SAFEX spot price minus the average transport differential and handling costs.

The average cost of value-adding (processing, packaging and distribution) was determined by interviewing local processors and suppliers. The manufacturer to retail margin is calculated by deducting the total production cost of sunflower oil from the retail price of sunflower oil. The total cost of administration and marketing of the retailer and wholesalers needs to be deducted from the manufacturer to retail margin to determine the profits accordingly. In this study the profits of the retailer and wholesaler will not be discussed in detail.

1.5 DATA USED

Secondary data sources used in this study included the Food Pricing Monitoring Committee (FPMC), SAFEX, GSA and the South African Grain Information Service (SAGIS). To analyse comparative advantage and relative competitiveness in the

South African sunflower seed industry, information from Food and Agriculture Organisation (FAO) (2011) was applied to the RCA and RTA indexes.

1.6 LIMITATIONS OF THE STUDY

- The study is limited to the South African sunflower seed industry
- Willingness of role players to share profit information.
- Very few studies on the competitiveness of the sunflower industry in South Africa.

1.7 LAYOUT OF THE STUDY

The study is divided into the following chapters: **Chapter 2** consists of a review of related literature, **chapter 3** provides an overview of the international and South African sunflower seed industry, **chapter 4** provides the research findings of the study and discussion and **chapter 5** concludes with a summary and recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

According to Zereyesus (2003: 14), current trends relating to the globalisation of markets, trade liberalisation, advances in information technology, consumer preferences and improved logistics are putting pressure on industries worldwide to become more competitive. We must learn to compete in an ever tougher world market place to maintain our living standards. Higher productivity and product quality have become essential for industries to compete globally (Smit, 2010: 106). According to Porter (1990: 76), productivity of a nation is the most important factor for competitiveness. International competitiveness of countries is a growing concern for governments and firms worldwide (Ketels, 2006: 63). Van Rooyen *et al.* (1999: 1) state that producers and agribusinesses now have to position themselves as business driven competitors in a less controlled, free market global trading environment.

Comparative advantage and being competitive in an industry have become very important factors for most South African industries. In this new environment business interaction within the value chain linking input suppliers, producers, processors, traders and the final consumer becomes the reality for value adding (Soler and Tanguy, 1998: 171). Agricultural economic analysis have an important contribution to point out the inefficiencies and weaknesses in the value chain, whilst emphasising elements that could give competitive advantage to agriculture with regard to both the challenge of global competition and satisfaction of local customer demand (Van Rooyen *et al.*, 1999: 1).

In this chapter competitiveness is defined. A brief description of the principles and theoretical foundations of the Porter's Diamond model and the Balassa's revealed

comparative method is discussed. The value analysis as seen by Porter (1990) is discussed in the last section before the chapter is concluded.

2.2 DEFINING COMPETITIVENESS

South Africa has become a part of the global economy. According to Karacsony (2006: 400) a number of ways has been developed to measure and define competiveness, however, because of its complexity it has no generally accepted definition or measuring method. A nation's competitiveness depends on the capacity of its industry to innovate and upgrade. Companies gain advantage against the world's best competitors because of pressure and challenges. They benefit from having strong domestic rivals, aggressive home-based suppliers and demanding local customers (Porter, 1990: 74).

Porter (1990: 76) defined "competitiveness" as a proxy for national productivity, it is the major source of national income and it also represents living standards in the long run. Therefore, in order to increase national productivity and living standards, business private sector can make quite a difference by keeping up innovation speed and producing goods and services which meets the needs of human beings.

A study by Karacsony (2008: 401) on the competitiveness of the Hungarian wheat sector, has incorporated the factors defining competitiveness into the following groups:

- comparative advantages (technological, productivity differences, natural makings);
- competitive abilities (leadership and organisation abilities cost-yield-income indicators) and
- the role of the government (education, research, macro environment, infrastructure and regulations).

Competitiveness generally depends on economic conditions (price, cost, income, market conditions and subsidies) on the one hand, and natural (climate, soil conditions and moisture) and factory conditions (factory type, structure and resource -provision) on the other hand. Competitiveness is mainly linked to comparative

advantage which is connected in the Heckscher-Ohlin theory and to competitive advantage related to Porter's Diamond Model (Lall, 2001:1516).

2.3 METHODOLOGY

Comparative- and competitive advantage are frequently used to measure competitiveness (Van Rooyen *et al*., 1999: 3). These concepts are important foundations for understanding the importance of international trade in agriculture and to illuminate the underlining factors responsible for current trade patterns. Comparative advantage explains how trade could benefit nations through more efficient use of the world's resource base (land, labour and capital inputs) when that trade is totally unrestricted. Competitive advantage explains exiting trading patterns as they exist in the real world, including all the barriers to free trade for example policy effects, product quality differences and industry marketing skills which are ignored by comparative advantage (Worley, 1996: 22). Competitive advantage therefore reflects business opportunities within current policy and price distortions.

There are many methods developed and used by researchers to measure competitiveness. ISMEA (1999) prioritised two methods to determine the competitiveness in a global environment namely Porter's Diamond Model a well-known approach to the study of competition originated by Porter (1990), and the competitiveness indicators as originally developed by Balassa (1977,1986).

2.3.1 RELATED STUDIES

Many studies were conducted on the competitiveness of agricultural commodities globally. Most of these studies however, focused on the international environment and very few studies exist on sunflower seed competitiveness in South Africa.

Van Rooyen *et al.* (1999) estimated the competitiveness of agribusiness in the South African food commodity chain. The competitiveness of sixteen selected food commodity chains in South Africa was calculated using Balassa's RCA method. The study indicated that the majority of commodity chains are marginally competitive.

Except for maize, pineapple and apple value chains, the competitive index generally decreases when moving from primary to processed products. These findings have serious implications for market strategies and local value adding and employment creation opportunities. They concluded that it is important to pin point the sources of reduced competitiveness and develop appropriate strategies to improve the South African competitiveness. To compete in a global economy, strategies should be followed that will improve the competitiveness of the whole food supply chain.

Ilyas *et al.* (2006) estimated the competitiveness among Asian Exporters in the world rice market. With the gradual reduction in trade barriers led by the process of globalisation, more emphasis is now being placed on promoting export competitiveness. In order to describe the processes involved in securing and maintaining international competitiveness in rice exports, the study used the Balassa and White indices of Revealed Comparative Advantage and Revealed Competitive Advantage respectively. Results have revealed that Pakistan is the most competitive country in rice trade and ranks first in both agricultural product trade and total merchandise exports.

Karacsony (2008) did an analysis on the competitiveness of the Hungarian wheat sector, the author applied Porter's diamond model to explore the competitiveness of the Hungarian wheat sector. The results of this study found that the Hungarian wheat is competitive when compared internationally. In order to improve sector competitiveness bettering information streaming, risk management and incentives to create quality production programs are a must, and so is the replacement of the old out of date machinery which are maintained at significant expenses.

Esterhuizen and Van Rooyen (2005) implemented the Porter framework to develop strategies to improve the competitiveness of the South African wine industry. Global markets for products and global sources of inputs increase the need for the wine industry in South Africa to be internationally competitive. The industry can only provide increased incomes for its participants and enhance its contribution to national economic growth if it improves its competitiveness. In this study a comprehensive approach to competitiveness analysis developed by Porter (1990) was used to establish the determinants of competitiveness and analyse the current factors influencing the competitiveness of the wine industry in South Africa. A range

of strategies at firm, government and industry level to enhance competitiveness were derived from the findings.

Hallatt (2005) estimated the relative competitiveness of the South African oilseed industry. Agribusinesses in South Africa are influenced by a number of factors including increased globalisation of markets, trade liberalisation, advances in information technology and consumer preferences. In this study the comparative advantage and relative competitiveness of the South African oilseed industry were measured by applying three indexes the RCA, Net Export Index (NXI) and the Relative Revealed Comparative Trade advantage (RTA) index. The study found that South Africa is only competitive in the primary oilseed market. The analysis further found that the South African oilseed industry is price driven. Since price plays a large role in the competitiveness of the industry, imports of cheaper bottled refined oils are considered to pose a major threat.

Van Rooyen *et al.* (2000) estimated the opportunities for agribusiness partnerships and co-operation in the Southern African region. In the study the competitiveness status of agribusiness from a global viewpoint in sixteen food and fiber supply chains for South Africa, Namibia and Zimbabwe was determined using the RCA method of Balassa. The results proved that there is potential in certain agro-food chains for supply chain integration and co-operation between agribusinesses in South Africa, Namibia and Zimbabwe i.e. partnerships will improve competitiveness and will allow agribusinesses to compete in the global environment.

2.3.2 PORTER'S DIAMOND MODEL

In the early 1980's the US industry saw its economic competitiveness eroded by Japanese and European competitors (Porter, 1990). Porter (1990) concluded that classical international trade theories, which mainly focused on slowly changing "inherited" variables such as natural resources, climate, size of working population, etc. could only explain why nations gain competitive advantage in a given industry. Porter (1990: 78) developed a framework of competitive advantage "A Diamond of National Advantage" based on detailed case studies of firms in 100 industries in 10 industrially advanced nations (USA, Japan, Germany, UK, Switzerland, Italy,

Sweden, Denmark, Korea and Singapore) that constituted 50 % of the world exports in 1985. According to Porter, competitive advantage means having low costs, differentiation advantage, or a successful focus strategy. Porter argued that productivity is the main factor for international competitiveness and that the standard of living of a country's population can be improved as a direct result of the growth in this factor.

As shown in Figure 2.1 Porter's Diamond model stressed the determinants of national advantage based on four country-specific determinants and two external variables, chance and government. Porter's four determinants and two outside forces interact in the "diamond" of competitive advantage, with the nature of a country's international competitiveness depending upon the type and quality of these interactions.

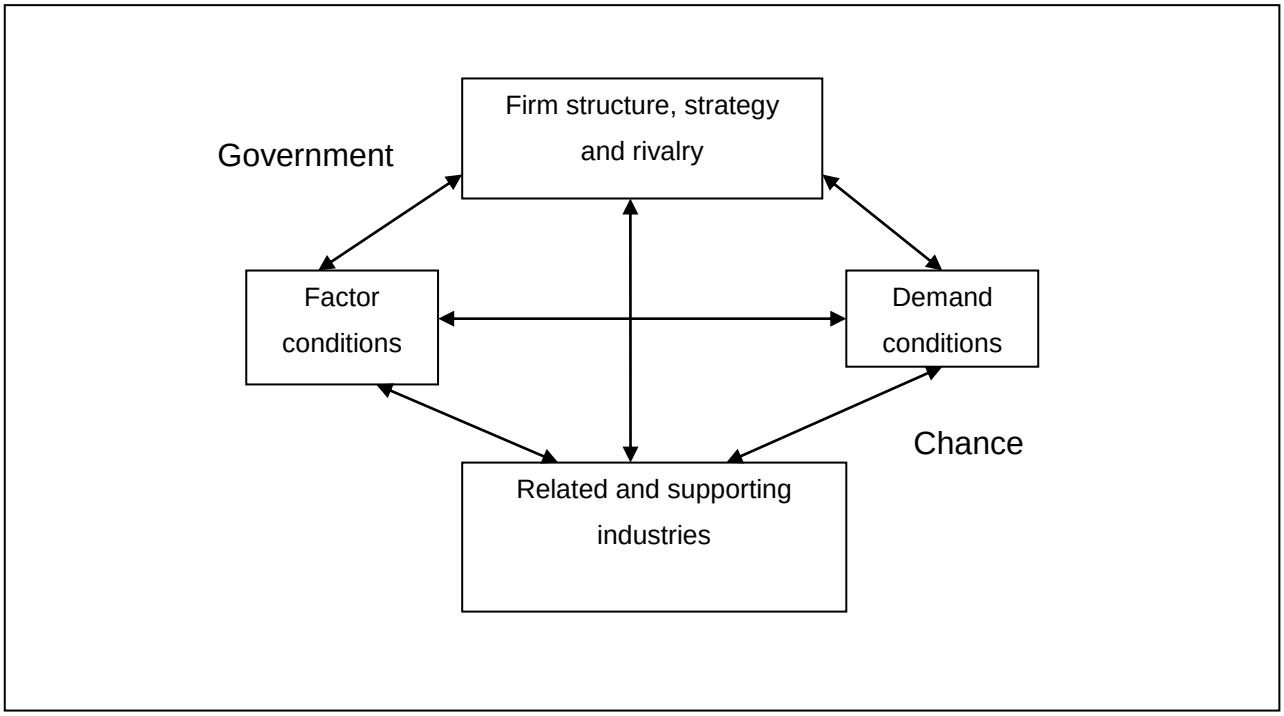


Figure 2.1: Determinants of national competitive advantage
Source: Porter (1990)

According to Porter's Diamond competitive advantage model, the four main attributes that shape the national environment in which local firms compete includes:

- **Factor conditions:**

  Traditional trade theories define factor conditions as land, labour and capital (Smit, 2010: 115). Porter (1990: 79) distinguishes between the following categories: human resources, physical resources, knowledge resources, capital resources and infrastructure. Factor conditions can be subdivided into basic and advanced factors. Basic factors can be identified as unskilled labour, raw materials, climatic condition and water resources, and are inherited. According to Porter, advanced factors such as skilled labour capital and infrastructure are created and upgraded through reinvestment and innovation which form the basis for sustainable competitive advantage of a country.

- **Demand conditions:**

  According to Porter (1990: 82) demand conditions in a country are perceived as a source of competitive advantage for a country. Porter focuses on demand differences and not on similarities to explain the international competitiveness of countries. The composition of home demand shapes how firms perceive, interpret and respond to the need of the buyers. This forces firms to continually innovate and upgrade their competitive positions to meet the high standards in terms of product quality, features and service demands.

- **Related and supporting industries:**

  International competitive supplier industries are industries that create advantages in downstream industries through efficient, early or rapid access to cost-effective inputs. Internationally competitive related industries are industries which can co-ordinate and share activities in the value chain when competing or those which involve products that are complementary (Liu & Hsh, 2006: 3). The introduction of related and support industry as a separate determinant of national competitive advantage has been viewed as one of the most important contributions of Porter's Diamond Theory (Teece, 1996: 193). According to Porter (1998: 77), the external economies of related and support

industry clusters, such as networks of specialised input providers, intuitional and the effects of local rivalry become the true source of competitive advantage. He argues that the cluster must represent an environment in which learning, innovation and operating productivity can be enhanced. Porter (1990: 82) claims that the core challenge of economic development is to build clusters in order to realise external economies and that the focus should be on removing obstacles to productivity improvement and innovation in cluster development.

- **Firm strategy, structure and rivalry:**

  According to Porter it is the national conditions that determine how companies are created, organised and managed. The focus in this determinant is that the strategies and structures of firms depend on the national environment, and that there are systematic differences in the business sectors in different countries that determine the way in which firms compete in each country and ultimately their competitive advantage (Smit, 2010: 117). Porter (1990: 83) identifies rivalry as the most critical driver of competitive advantage of a country's firms. Domestic rivalry forces firms to be cost competitive, to improve quality, launch new products, to invest in new more advanced technologies and to be innovative. According to Porter (1990: 83) it is the international competitiveness of a country that shapes the international competitive advantage of firms.

Porter (1990: 87) stated two additional variables affecting the competitiveness of a nation, but is not direct determinants which are:

- The role of chance as caused by developments such as new inventions; political decisions by foreign government; wars; significant shift in world financial markets or exchange rates discontinuities in input costs such as oil shocks; surge in world or region demand; and major technological breakthroughs (Liu & Hsu, 2006: 3). These disruptive developments outside the control of firms and governments allow new competition who exploits opportunities arising from a reshape in industry structure.

- Government policies can influence each of the determinants of the Porter's Diamond Model. Successful government policies work in those industries where underlying determinants of national advantage are present and reinforced by government actions. The various roles of government includes subsidies; education policies; actions towards capital markets; the establishment of local product standards and regulations; the purchase of goods and service; tax laws; and antitrust regulations (Porter, 1990: 87).

2.3.3 ADVANTAGES AND DISADVANTAGES OF PORTER'S DIAMOND MODEL

The following advantages and disadvantages of Porter's model were identified by Grant (1991):

Advantages:

- Porter's Diamond model explains why corporations domiciled in certain countries are successful in penetrating foreign markets. This model can be used to assess competitive advantage of the national environment in which individual business units, organisations or industries operate.
- The model helps to understand the dynamic interplay between a firm's corporate strategy and the competitive advantages of a country. This model is an addition to Porter's five forces model dealing with industry structure. The diamond model emphasises that a firm should only internationalise when it has a strong position in its home market.
- The model provides an explanation of why industry clusters are relevant.
- Governments can play an active role in supporting the developing of clusters.
- The model shows that apart from inter-firm rivalry, cooperation is a vital component of corporate strategy. Companies should form strategic alliances, especially with organisations in related and supporting industries.

Disadvantages:

- The situation in which all four attributes are correctly lined up to boost the development of a given industry provides only a higher probability that an

industry that an industry will develop. Its development depends on personal action for the favorable conditions to be fully commercially exploited.

- The absence of any of the four conditions from the diamond domestically, may not inhibit companies and industries from becoming globally competitive. For example if related and supporting industries are not available locally, materials and components can easily be brought in from abroad because of advancement in transportation and the relaxation of import restrictions.
- Capacity gets created by better allocation of resources due to the pressure of competition. The model pays no direct attention to competence building.
- The level of importance of chance as a nucleus for change is not clear. How much change is needed to make the transition to a globally competitive economic cluster?
- Cooperation directly between rivals is considered non-advantageous due to the reason that it decreases the strength of rivalry.
- The importance of exchange rates and wage rates in the determination of competitiveness is overlooked. No comparative data for wages or, price levels in manufacturing were listed in the country fact files in Porter's 1990 volume.
- The impact of virtual clusters where participants located across countries collaborate via internet on Porter's model has not been determined.
- The model assumes that national free markets exits where firms compete head-to-head. This is not the case in many countries on this globe.
- According to Daniels *et al*. (2006: 6) Porter placed perhaps a too great emphasis on the role of home based companies when the driving force is the multinational companies.
- Moon *et al.* (1998: 99) argued that the Porter Diamond Framework is useful in a single country context but, as so much of a nation's activity takes place in a regional, international or global context, it is important to consider the trade relationship between countries to gain a full understanding at the nation level. A Double Diamond Framework was proposed to consider the trade space between two countries.

Porter's method evaluates the competiveness of the producer and all the participants in the value chain. This method allows to identify and analyse the structure of a sector and to point out the strengths and weaknesses. Critical success factors can also be identified to which participants in a chain have to pay special attention in order to develop and sustain competitive advantage as successfully as possible in the years to come.

2.4 THE BALASSA METHOD

The Ricardian and Heckscher-Ohlin theories of comparative advantage accommodate the international trade of two countries with two commodities. This analysis has its restriction when trade takes place among many countries and many commodities (Ilyas *et al.,* 2006: 3). Balassa (1965) has developed an index of Revealed Comparative Advantage that deals with many countries and many commodities.

2.4.1 REVEALED COMPARATIVE ADVANTAGE

Balassa (1965: 118) measured comparative advantage to investigate trade patterns directly, without reference to underlying resources, productivity, subsidies or price. According to Balassa, RCA could be indicated by the performance of individual commodities and countries in the sense that the commodity pattern trade reflects relative market costs as well as differences in non-price competitive factors, such as government policies. The RCA method developed by Balassa (1965) compares a country's share of the world market in one commodity relative to its share of all traded goods (Van Rooyen *et al.*, 1999: 4).

The RCA index, according to Galetto (2003: 84) is one of the popular measurements of competitive performance used to study profiles in various export products. The formula is expressed mathematically as follows:

$$R_{ih=}\frac{X_{ih}/X_{it}}{X_{wh}/X_{wt}}$$

Where,

R_{ih} = Revealed comparative advantage ratio for country i in product h

X_{ih} = Country i's exports of product h

X_{it} = Total exports of country i

X_{wh} = World exports of product h

X_{wt} = Total world exports

From the above equation the RCA is a ratio of the share of a product (h) in a country's (i) exports to its share in world exports. A country has RCA in product h if $R_{ih} > 1$. The export shares that underlie the RCA ratio are influenced by external and internal trade policy distortions. The Balassa's RCA index faces measurement problems to the extent that these distortions may be present. The pattern of "true" comparative advantage may differ from the one suggested by the RCA ratios. Batha and Jooste (2004: 9) argued that since the impact of changes in trade policies can be deducted from movements of RCA, this index can still be used.

2.4.2 RELATIVE COMPARATIVE ADVANTAGE

Vollrath (1991: 127) introduced the revealed competitive index that takes into account a country's exports as well as imports relative to the rest of the world's exports and imports of a particular commodity. An improved version of Balassa's original version, namely RTA index, offered by Vollrath (1991: 127) reflects both imports and exports, and is formulated as follows:

$$RTA_{ij} = RXA_{ij} - RMP_{ij} \quad (1)$$

$$RXA_{ij} = (X_{ij}/\sum \mathrm{l}, \mathrm{l}\neq\mathrm{j}\mathrm{X}_{\mathrm{ij}})/(\sum \mathrm{k}, \mathrm{k}\neq\mathrm{j} X_{kj}/\sum k, \mathrm{k}\neq\mathrm{i}\sum \mathrm{l}, \mathrm{l}\neq\mathrm{j}\mathrm{X}_{\mathrm{kl}} \quad (2)$$

$$RMP_{ij} = (\mathrm{M}_{\mathrm{ij}}/\sum \mathrm{l}, \mathrm{l}\neq\mathrm{j} M_{jl})/(\sum k, \mathrm{k}\neq\mathrm{i}\sum \mathrm{l}, \mathrm{l}\neq\mathrm{j}\ \mathrm{M}_{\mathrm{kl}} \quad (3)$$

In the equations above, X(M) refer to exports (imports), with the subscripts *i* and *k* denoting the product categories, while *j* and *l* denote the country categories. The numerator is equal to a country's export (import) of a specific product category

relative to the exports (imports) of this product from all countries but the considered country. The denominator reveals the exports (imports) of all products but the considered commodity from the respective country as a percentage of all other countries' exports (imports) of all other products.

The RTA index describes a country's share in the world market in one commodity relative to its share of all traded goods, this index reflects both imports and exports (Hallat, 2005: 68). Trade patterns are likely to be distorted by government policies and interventions and may therefore misrepresent the underlying comparative advantages (Ferto & Hubbard, 2001: 247). The RTA index does not indicate how a country acquires market share and if market share could be well maintained by costly government incentives (Ilyas *et al.* 2006: 5).

2.5 VALUE CHAIN ANALYSIS

A value chain analysis is necessary because such analysis will indicate the competitiveness of each element or activity in a particular value chain (Van Rooyen *et al.*, 2000: 1). According to Porter (1985: 2), the value chain analysis describes the activities within and around an organisation and relates them to an analysis of the competitive strength of the organisation. This evaluates the value each particular activity adds to the organisation's products or service. According to Porter (1990: 91), an organisation is more than a random complication of machinery, equipment, people and money. Only if these are arranged into systems and systematic activities it will become possible to produce something for which customers are willing to pay a price. Porter argues that the ability to perform particular activities and to manage the linkages between these activities is a source of competitive advantage.

Porter distinguishes between primary activities and support activities as shown in Figure 2.2 of the Porter's Value Chain. Primary activities are directly concerned with the creation or delivery of a product or service. They can be grouped into five main areas namely: inbound logistics, operations, outbound logistics, marketing & sales and service. Each of these primary activities is linked to support activities including: procurement, technology development, human resource management, and infrastructure.

The term “margin” implies that organisations realise a profit that depends on their ability to manage the linkages between all activities in the value chain. In other words, the organisation is able to deliver a product or service for which the customer is willing to pay more than the sum of the costs of all activities in the value chain (Porter, 1985: 3).

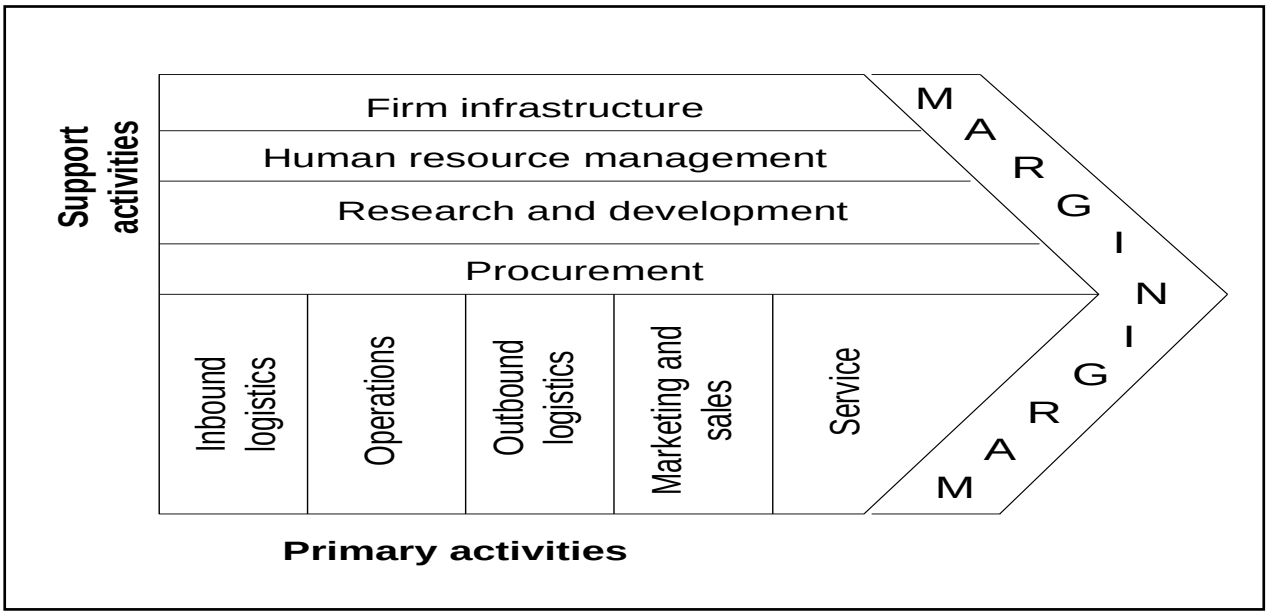


Figure 2.2: Porter’s value chain

Source: Porter (1990)

Within the whole value system, there is only a certain value of profit margin available. This is the difference of the final price the customer pays and the sum of all costs incurred with the production and delivery of the product or service. It depends on the structure of the value system how this margin spreads across the suppliers, producers, distributors and other elements of the value system. Each member of the system will use its market position and negotiating power to get a higher proportion of this margin. Nevertheless, members of a value system can cooperate to improve their efficiency and to reduce their costs in order to achieve a higher total margin to the benefit of all of them (Porter, 1990).

2.5.1 ADVANTAGES AND DISADVANTAGES OF VALUE CHAIN ANALYSIS

The following advantages and disadvantages of the value chain analysis were identified by Simister (2011: 1):

Advantages:

- The value chain is a very flexible strategy tool for looking at business, competitors and the respective places in the industry's value system.
- The value chain can be used to diagnose and create competitive advantages on both cost and differentiation.
- It can be adapted for any type of business.
- Porter emphasised the importance of (re)grouping functions into activities to produce, market, deliver and support products, to think about relationships between activities and to link the value chain to the understanding of an organisation's competitive position.
- An organisation is multifaceted and that its underlying activities need to be analysed to understand its overall competitive position. An organisation's strengths and weaknesses can only be identified in relation to the profiles of its direct competitors. Competitive advantage is derived from an integrated set of decisions on these key activities.

Disadvantages:

- It's very strengths of flexibility mean that it has to be adapted to a particular business situation and that can be a disadvantage.
- The scale and scope of a value chain analysis can be intimidating.
- The quantitative analysis is time consuming since it often requires recalibrating the accounting system to allocate costs to individual activities.
- The value chain analysis should be accompanied with a customer segmentation analysis to mix the internal and external view.

A typical value chain analysis can be performed in the following steps:

- Analysis of own value chain, in which costs are related to every single activity.
- Analysis of customer's value chains, how does our product fit into their value chain?
- Identification of potential cost advantages in comparison with competitors.

- Identification of potential value added for the customer, how can our product add value to the customer's value chain?

According to GSA (2010), the sunflower value chain comprises of a number of commercial entities. These entities include sunflower seed producers, crushers of seed, farmers, refineries of crude oil, wholesalers, retailers and consumers. All of these entities reflect important stages of sunflower oil production, and the interaction between these entities is illustrated in Figure 2.3.

Producers of sunflower seed deliver their product to seed crushers who produce crude oil and oilcake from the raw material. The sunflower crude oil has several uses and refineries process the crude oil into products explained in Figure 2.3. The oilcake is used by animal feed manufactures to manufacture a concentrate in the form of sunflower oilcake meal. Refineries may also import crude oil from the international market and their products and those of the animal feed manufactures are packaged, labeled and sent to wholesalers and retailers who in turn will sell to consumers.

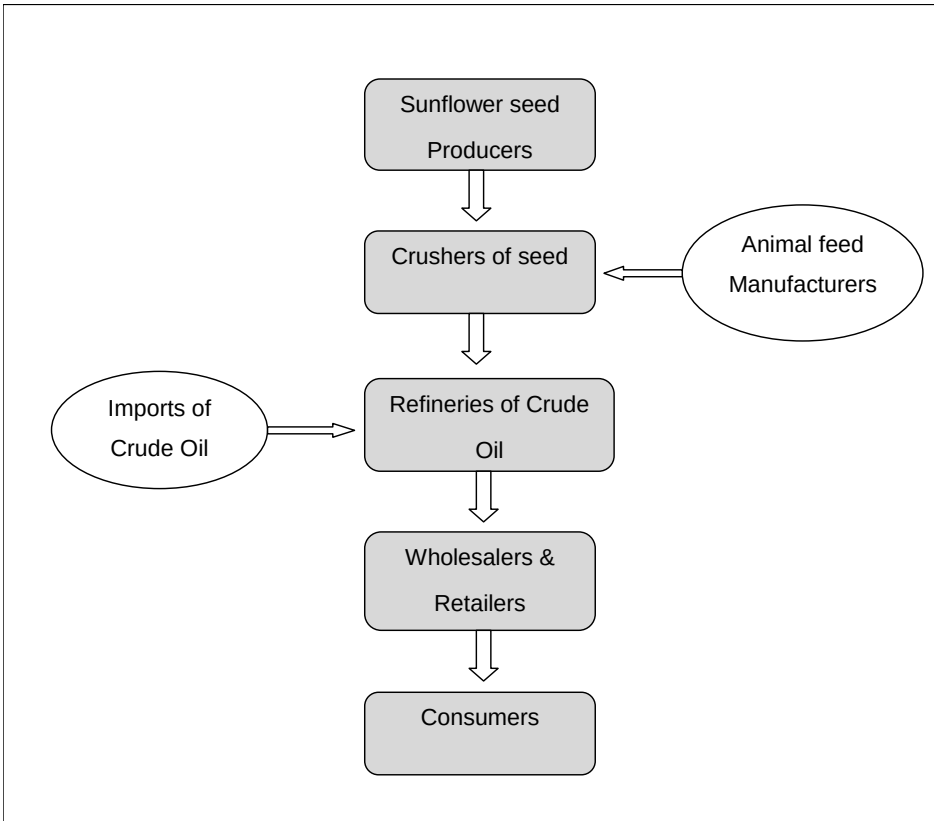


Figure 2.3: Sunflower Seed market value chain

Source: Grain SA (2011)

2.6 CONCLUSION

World trade is driven by the competitive advantage that firms in countries have in producing different goods and services (Van Rooyen *et al.*, 1999: 7). The analysis of the competitiveness of an industry is usually carried out by assessing trade indices, comparing trends and countries in the international market. In this chapter the different methods of measuring competitiveness is discussed.

From the literature reviewed it is clear that Porter's diamond model analyse the country-specific sources of advantage that enhance the international competitive advantage of firms. The Revealed Comparative Advantage and revealed competitive advantage indices are useful in examining trade performance (Ilyas *et al*., 2006: 7). Country-specific advantages are not the same as comparative advantages. Country-specific advantages emphasise location as a source of international competitive advantage for firms, whereas comparative advantage emphasises the sector composition of trade between countries (Smit, 2010: 121). Value chain analysis, according to Porter (1985: 8) indentifies the firm's core competencies and distinguishes those activities that drive competitive advantage.

All the models discussed in this chapter may not be applicable to all circumstances in the international market, they are valid models and can still offer meaningful predictions in a variety of circumstances. According to Gupta (2009: 2), using the models of comparative advantage together with models of competitive advantage have the potential of offering a much richer analysis of international trade.

CHAPTER 3

OVERVIEW OF THE INTERNATIONAL AND SOUTH AFRICAN SUNFLOWER SEED INDUSTRY

3.1 INTRODUCTION

According to the FPMC (2003: 1) oilseeds, and more specifically sunflower seed, is one of the most important field crops in the world. The importance of oilseeds originated from the demand for vegetable oils for industrial use and human consumption. Animal feed manufacturers have a demand for oilseed oilcake, for the inclusion of protein meals in feed rations. The vegetable oil market has changed over the last decade due to increased health consciousness and consumers patterns have changed from fats towards healthier vegetable oils (Van Schalkwyk, 2003: 22).

In this chapter both the international and the South African sunflower seed production is discussed. The South African market share and performance regarding sunflower seed production is compared to the international production situation.

3.2 INTERNATIONAL SUNFLOWER SEED PRODUCTION

As mentioned, sunflower seed is regarded as one of the important oilseeds grown in the world. From Table 3.1 it is clear that soybean production dominates the international oilseed market, as it contributes 57 % of the world's total oilseed production. In 2010/2011, world sunflower seed production was 30.65 million tonnes, which is only 6.90 % of the total oilseed production in the world. The average sunflower seed production in the world during the 2006/07 to 2010/11 seasons was 30.26 million tonnes (Table 3.1).

Table 3.1: World production of oilseeds (million tonnes)

	2006/07	2007/08	2008/09	2009/10	2010/11	Average
Production						
Oilseed Copra	5.27	5.72	5.88	5.88	5.96	5.74
Oilseed Cottonseed	46.03	45.89	41.08	39.22	43.33	43.11
Oilseed Palm Kernel	10.08	11.03	11.74	12.22	12.73	11.56
Oilseed Peanut	31.03	32.59	34.47	32.98	34.71	33.16
Oilseed Rapeseed	45.12	48.56	57.91	60.62	58.39	54.12
Oilseed Soybean	236.23	220.41	211.96	260.27	258.4	237.45
Oilseed Sunflower seed	29.74	27.2	33.27	30.45	30.65	30.26
Total	**403.51**	**391.39**	**396.32**	**441.64**	**444.17**	**415.41**
Sunflower as % of total	**7.37**	**6.95**	**8.39**	**6.89**	**6.90**	**7.30**

Source: USDA (2011) and own calculations

The importance of oilseeds relates to the fact that only a small percentage of oilseeds produced locally and internationally are consumed in primary form (Van Schalkwyk, 2003: 2). According to Van Schalkwyk *et al.* (2003: 12), processing oilseed provides inputs to various other sectors of the economy, including agricultural inputs in the form of animal feed and industrial inputs for the manufacturing of a variety of products.

As indicated in Figure 3.1 the European Union, Russia, Ukraine, Argentina and India are the five largest producers of sunflower seed, and are contributing 78% towards the total production of sunflower seed in the world. The two largest producing countries of sunflower seed are the Russian Federation and the Ukraine, which produces around 46% of the world's total sunflower seed production. South Africa is ranked tenth and contributes only 2% towards the total world sunflower seed production.

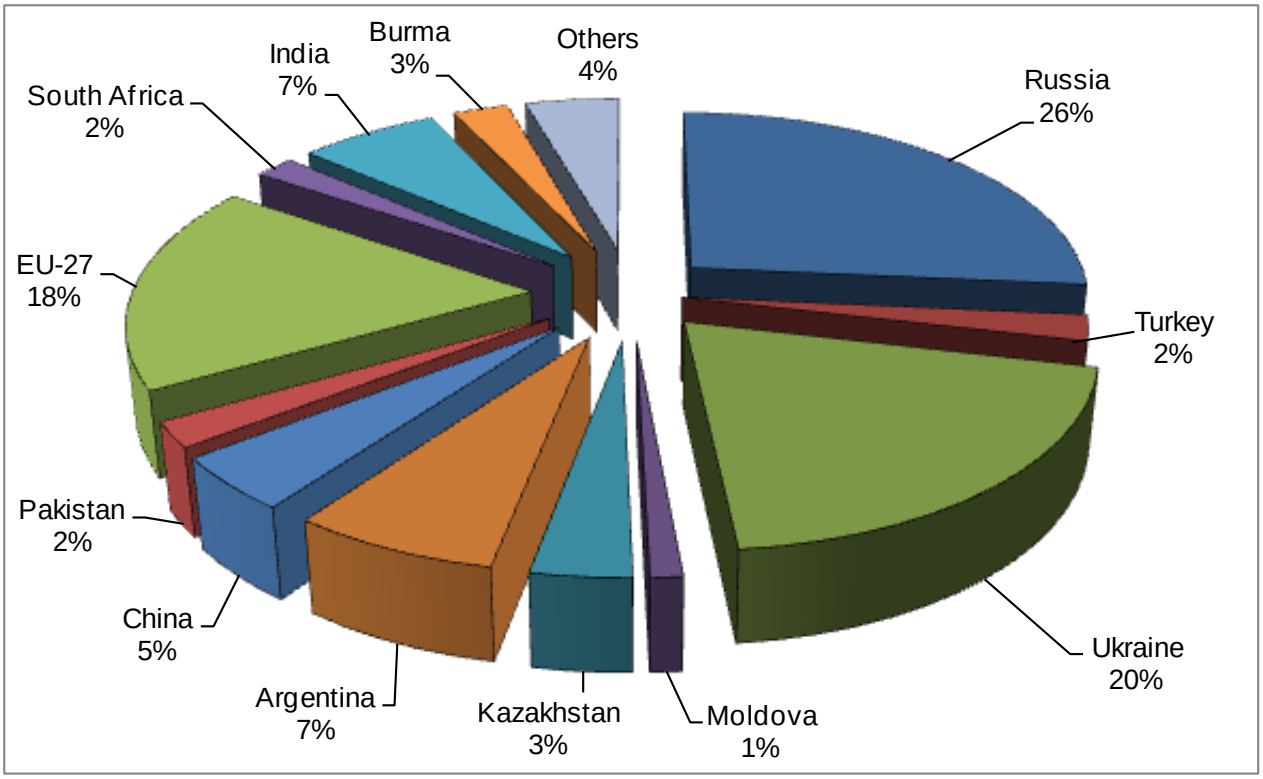


Figure 3.1: The total sunflower seed production in the world

Source: USDA (2011) and own calculations

Sunflower seeds are mainly processed into sunflower oil and oilcake. The sunflower oil is consumed in the food chain, but also for industrial use for the production of bio-diesel. Sunflower oilcake is utilised by the animal feed industry as a source of protein into feed rations. The oil and oilcake contents of sunflower seed are therefore economically important as it affects the relative value of the sunflower seed (Kruse, 2003: 27).

3.3 INTERNATIONAL SUNFLOWER OIL MARKET

The international vegetable oil markets average oil production for the period 2006/07 to 2010/11 was 134.05 million tonnes. Sunflower oil is the fourth largest vegetable oil produced in die world after palm, soybean and rapeseed oil. The world sunflower oil production contributes about 8% of the total world vegetable oil production as indicated in Figure 3.2.

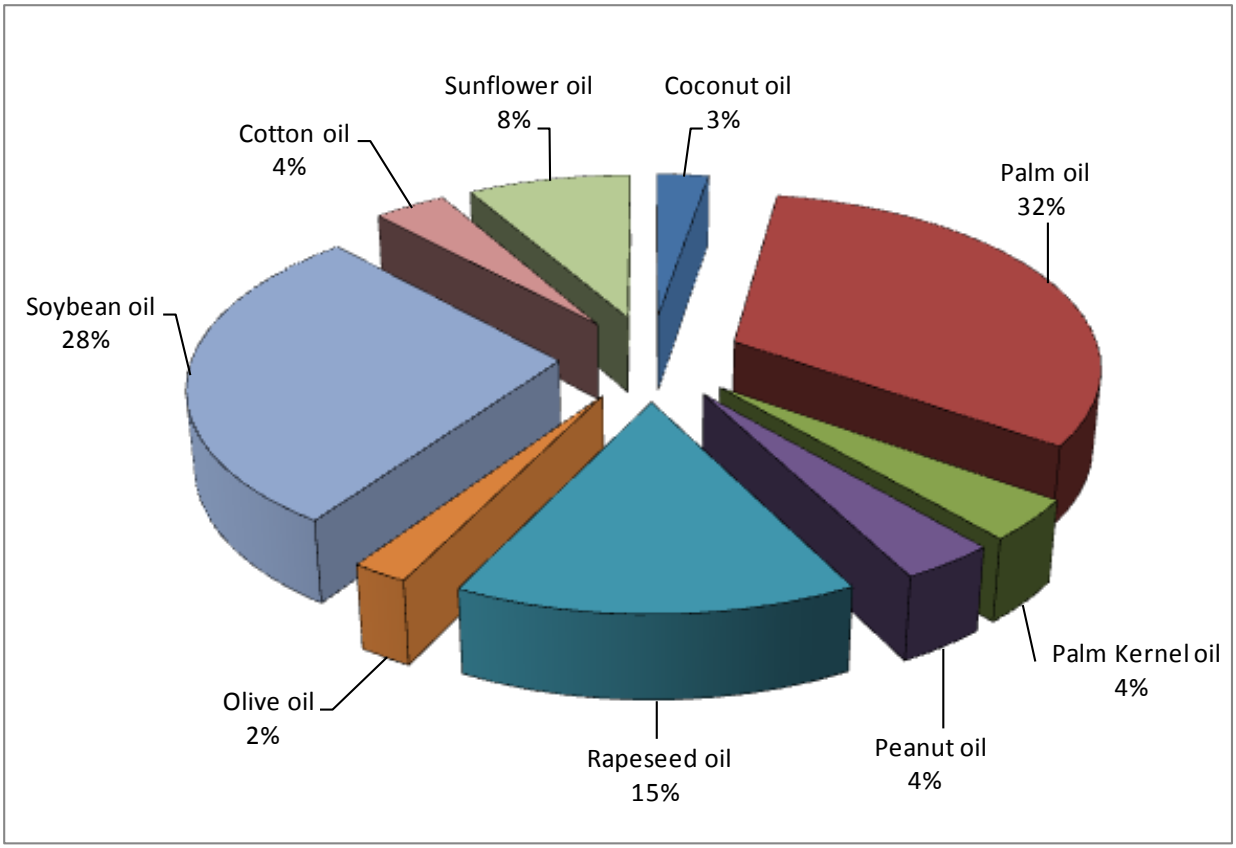


Figure 3.2: World production of vegetable oil

Source: USDA (2011) and own calculations

Sunflower oil is regarded as a premium vegetable oil which generally trades at a premium over soybean and palm oil due to its lower availability and its healthier fatty acid content. Internationally sunflower oil is primarily used as a salad or table oil and in margarine (Kruse, 2003: 34).

3.4 INTERNATIONAL SUNFLOWER OILCAKE MARKET

Sunflower oilcake is a by-product of the oil extraction process this and is regarded as a low -value product that does not compare well to soybean oilcake in terms of nutritional value. The demand for sunflower oil is limited by the demand of the by-product sunflower oilcake generated from crushing sunflower seed.

Various types of vegetable oilcake can be used in the production of animal feed rations; substitution between these different types of oilcake can take place as long as the substitute product provides the same nutritional value as the products being

substituted (Van Zyl, 2010: 23). In Table 3.2 the average crude protein content and the relative value of various oilseeds are compared to the value of soybean oilcake.

Table 3.2: Average crude protein and value of protein meals

Protein Meal	Crude Protein	Relative Value
Soybean Oilcake	48.50%	100.00%
Sunflower Oilcake	42.00%	86.60%
Rapeseed Oilcake	36.00%	74.20%
Canola Oilcake	38.00%	78.40%

Source: Van Schalkwyk (2003)

The demand for oilcake has been defined by animal feed manufactures as a function of, not only the price at which manufactures buy the meal from crushers, but also the protein and fiber content of the different types of oilcake available. Soybean oilcake is the protein meal with the largest production and accounts for 68% of the total protein meal production in the world, while sunflower oilcake only contributes 5% to the total production as indicated in Figure 3.3.

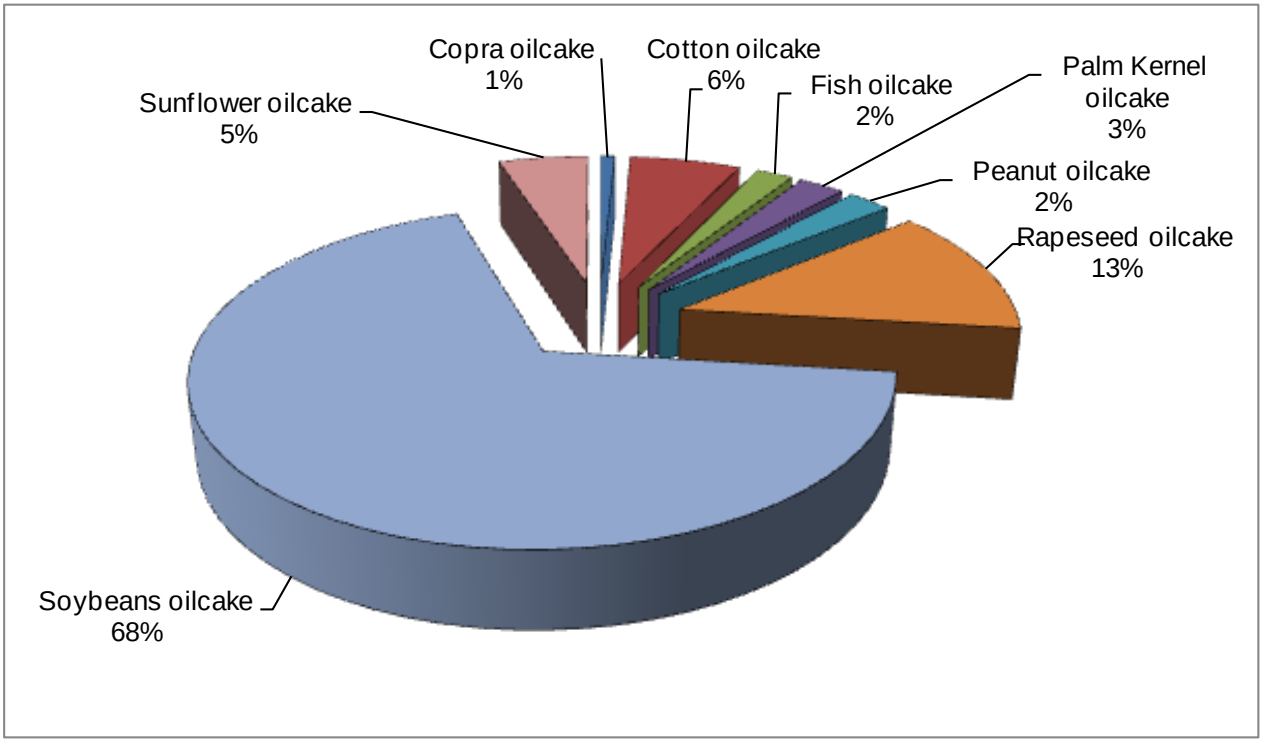


Figure 3.3: World protein oilcake production

Source: USDA (2011) and own calculation

3.5 SOUTH AFRICAN SUNFLOWER SEED PRODUCTION

The four major oilseeds produced in South Africa are sunflower, soybeans, groundnuts and canola. Figure 3.4 indicates the production of oilseeds from the 2006/07 to the 2010/11 production seasons in South Africa. It clearly shows that sunflower seed are the largest oilseed crop produced with a 54% contribution towards the total oilseed crop in South Africa.

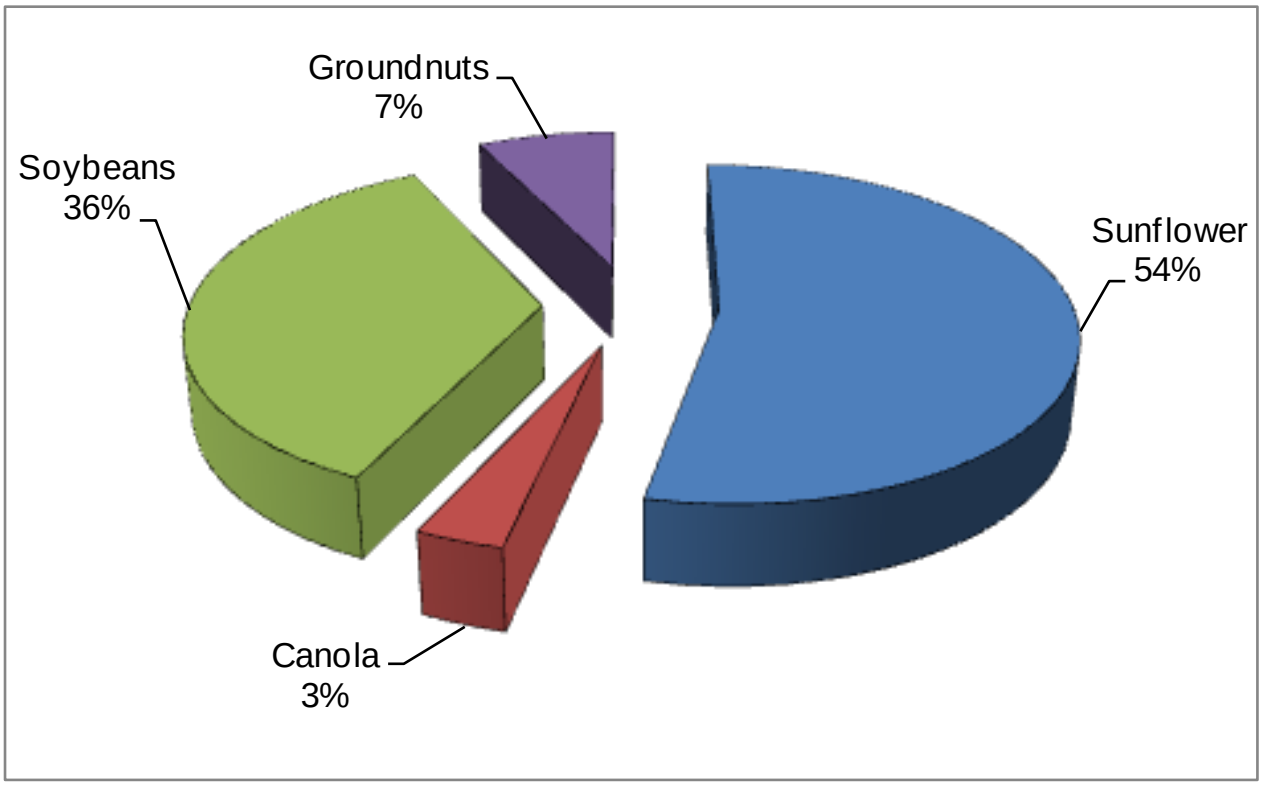


Figure 3.4: Production of oilseeds in South Africa during 2006/07 to 2010/11
Source: GSA (2011) and own calculations

The importance of sunflower seed production is not only from its contribution to the gross value of total agricultural production, but also from its value in the value adding chain. Oilseed seed consumption increased during the last decade and this increasing trend is predicted to continue (Van Schalkwyk *et al*., 2003: 16).

Sunflower seed is produced in eight of the nine provinces in South Africa. Sunflower seed is mainly planted in the Western, drier areas of the Free State and the North West provinces. Traditionally the North West and the Free State provinces produced

a significant amount of approximately 85% of sunflower seed produced in South Africa (GSA, 2010). The actual production of sunflower seed during 2010 and 2011 production season is shown in Table 3.3 and shows that the Free State and North West provinces were the major producers of sunflower seed. Very small quantities of sunflower seed were produced in the Western-, Eastern- and Northern Cape Provinces of South Africa.

Table 3.3: Regional distribution of area planted and production of sunflower seed

	AREA PLANTED (HA)			PRODUCTION (TONNES)		
PROVINCE	**2010**	**2011**	**% Share 2011**	**2010**	**2011**	**% Share 2011**
Western Cape Production	200	0	**0.00%**	200	0	**0.00%**
Northern Cape Production	850	500	**0.08%**	1700	1000	**0.12%**
Free State Production	175000	300000	**48.41%**	227500	390000	**48.24%**
Eastern Cape Production	150	200	**0.03%**	165	220	**0.03%**
Mpumalanga Production	8000	10000	**1.61%**	12800	15000	**1.86%**
Limpopo Production	75000	75000	**12.10%**	67500	75000	**9.28%**
Gauteng Production	3500	4000	**0.65%**	4900	5200	**0.64%**
North West Production	135000	230000	**37.11%**	175235	322000	**39.83%**
Total	**397700**	**619700**	**100.00%**	**490000**	**808420**	**100.00%**

Source: SAGIS (2011) and own calculations

The increase in the area planted to sunflower seed for the 2011 marketing year was mainly due to an increase of 125 000 hectares in the Free State province and an increase of 95 000 hectares in the North West province. The Free State and North West provinces are the major traditional producers of sunflower seed since the main grain production areas are situated within these provinces. The regional distribution remained approximately the same during the two seasons. The Free State is the leading producer with a share of 48% of the total area planted and 48% of total production, followed by the North West province with 37% of the total area planted and 40% of total production in South Africa. The commercial grain produced in South Africa is dominated by maize production. Sunflower contributed only 5% towards the total grain and oilseed production during the 2006/07 to 2010/11

seasons in South Africa. Sunflower is ranked as the third most important commercial row crop produced in South Africa as indicated in Figure 3.5.

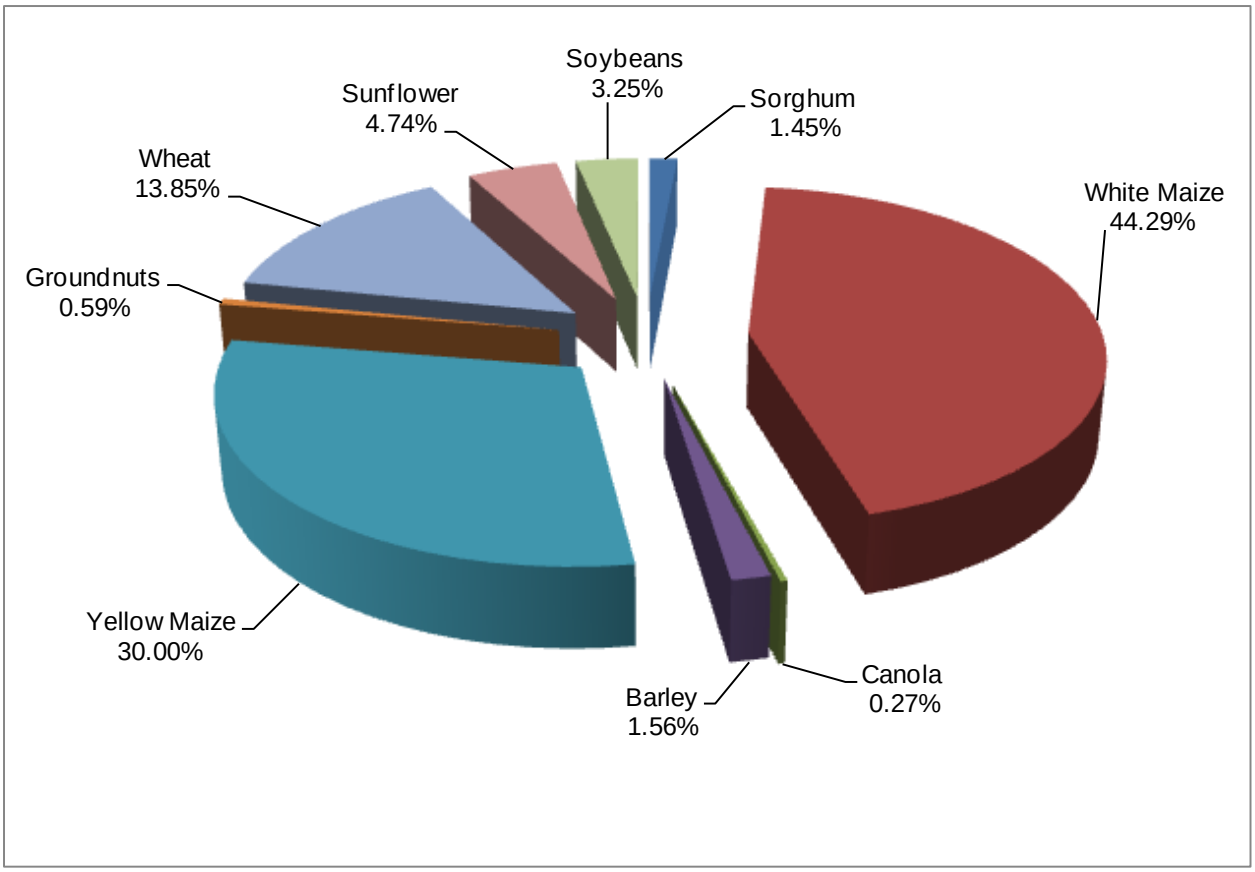


Figure 3.5: South African commercial grain and oilseed production during 2006/07 to 2010/11 seasons

Source: USDA (2011) and own calculations

3.6 THE SOUTH AFRICAN SUNFLOWER OIL MARKET

South Africa's annual consumption of vegetable oil is estimated at 1.1 million tonnes of which approximately 30% is produced locally. In the 2011 marketing year it is estimated that South Africa will produce 334 000 ton of oilseed oil as indicated in Table 3.4. This is a 30% increase in oil production due to the increase in sunflower and soybean production of the 2011 season (SAGIS, 2011).

Table 3.4: Oilseed oil production in South Africa ('000 tonnes)

Marketing year	Crush		Oil Produced	
	2010	**2011**	**2010**	**2011**
Oilseeds				
Sunflower (38 % oil)	587	780	223	296
Soybean (18 % oil)	184	210	33	38
TOTAL	**771**	**990**	**256**	**334**

Source: USDA (2011)

Over the past few years South Africa produced only 18% to 30% of its annual local consumption, making South Africa a net importer of vegetable oil. Of the 990 000 tonnes of oil seed produced in the 2011 season, approximately 334 000 tonnes of vegetable oil will be produced; which is less than the annual consumption of vegetable oil in South Africa. This means that for the 2011 marketing year South Africa will have to import about 800 000 tonnes of vegetable oil. These imports will mainly originate from the Russian Federation, Romania, Argentina and Australia (USDA, 2011).

3.7 THE SOUTH AFRICAN SUNFLOWER OILCAKE MARKET

In 2010 South Africa crushed 771 000 tonnes of oilseeds, which produced 394 000 tonnes of oilcake during the same time South Africa consumed approximately 1.4 million tonnes of oilseed meal. This makes South Africa a net importer of oilcake products. Table 3.5 shows the availability of total oilcake in South Africa during the past few seasons. With the increase in hectares planted to sunflower and soybeans in 2011, it is estimated that South Africa will crush 990 000 tonnes of oilseeds. This is a 26 % increase for the 2010 season, but only 32 % of the local consumption of oilseed oilcake in South Africa. South Africa will need to import 1.1 million tonnes of oilseed oilcake for the 2011 marketing year (GSA, 2011).

Table 3.5: Availability of oilcake in South Africa

	2005/06	2006/07	2007/08	2008/09	2009/10
Locally produced oilcake:					
Sunflower	267120	199500	138558	296520	364140
Soybean	210000	303280	253200	181600	251840
Cotton	72500	67500	67500	51500	50000
Canola	17270	21175	21945	21560	17050
Groundnut	1391	2515	54	1	1
Other oilcakes	3950	14400	13300	14000	18000
TOTAL PRODUCED	**572231**	**608370**	**494557**	**565181**	**701031**
Net imported oilcake:					
Sunflower	22144	68808	103987	68234	84906
Soybean	639678	812000	1008591	929572	831800
Cotton	174631	139383	143326	101929	121500
Groundnut			344		
Canola					
Other oilcakes	5655	6965	7425	11	3900
TOTAL IMPORTED	**842108**	**1027156**	**1263673**	**1099746**	**1042106**
TOTAL AVAILABLE	**1414339**	**1635526**	**1758230**	**1664927**	**1743137**

Source: SAGIS (2011), GSA (2011) and USDA (2011)

According to Animal Feed Manufactures Association (AFMA, 2011) the South African feed industry is capable of utilising more than 300 000 tonnes of sunflower seed meal per annum. Figure 3.6 illustrates that during the past five years the total production of sunflower oilcake exceeded the total consumption, which created an increased downward pressure on the price of sunflower oilcake. The price of sunflower cake is derived from its relative nutritional value compared to other oilcakes. Sunflower oilcake can only be stored for a maximum period of four months under favorable storing conditions (Prinsloo, 2007). When the production of sunflower oilcake is higher than the consumption, the price of the sunflower oilcake will need to decrease in relation to soybean oilcake to stimulate the consumption of sunflower oilcake.

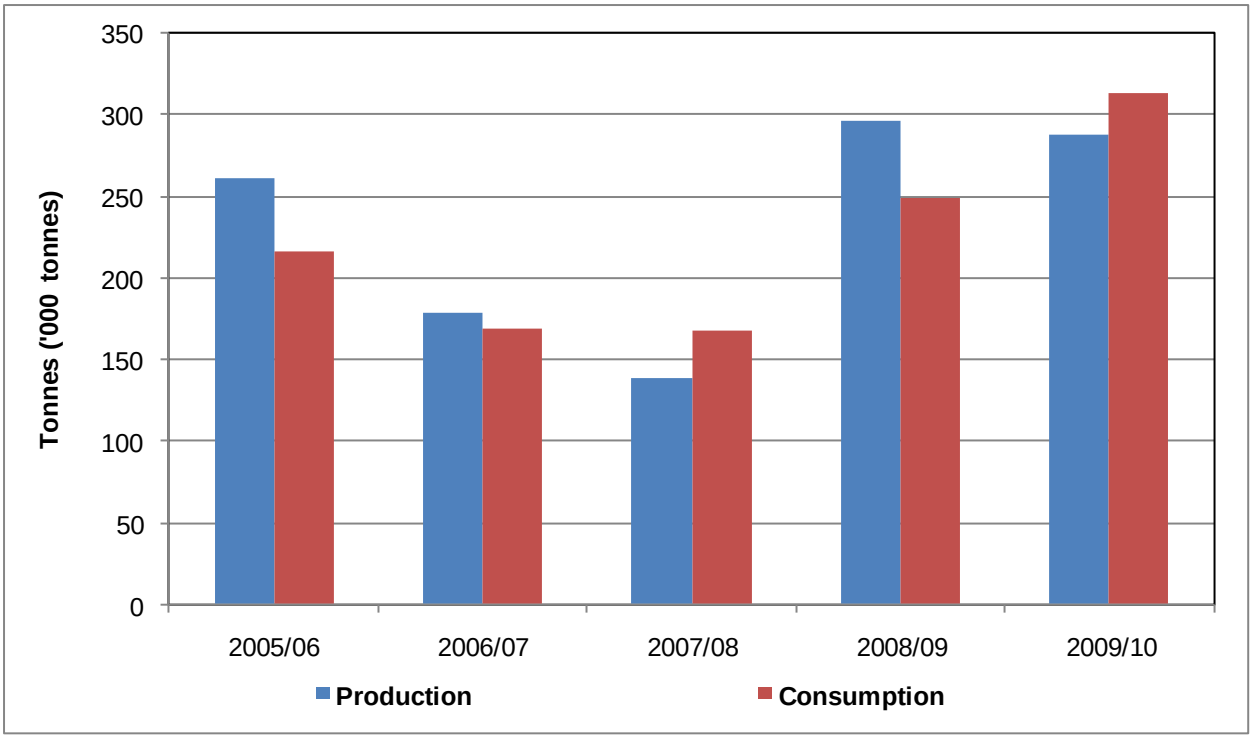


Figure 3.6: Production and consumption of sunflower seed oilcake in South Africa

Source: Van Zyl (2010)

3.8 CONCLUSION

This chapter provides an overview of the South African sunflower seed industry compared to the international industry. Internationally soybeans are the largest commodity which is produced. Although sunflower seed is regarded as a minor oilseed in world terms, it is the main oilseed produced in South Africa. South Africa produces only 30% of the consumption of vegetable oils in the country and is a net importer of vegetable oil and oilcake products.

Sunflower oilcake is regarded as a low value product and the price of sunflower oilcake derived from its relative nutritional value. When the supply of sunflower oilcake is higher than the demand, the price of sunflower oilcake need to trade at a discount to other oilcakes with a higher relative nutritional value to stimulate demand.

CHAPTER 4

RESEARCH FINDINGS AND DISCUSSION

4.1 INTRODUCTION

According Hallat (2005) the competitiveness of an industry will largely be influenced by the performance of their respective value chains in that industry. The concept of competitiveness has changed radically in the South African context over the last few years. Changes in the South African trading regime, as well as changes in forces that affect global markets for agricultural products, force producers and processors to position themselves as capable competitors in the global free market environment (Hallat, 2005: 2).

In this chapter the competitive status and trends in the competitiveness of the sunflower industry in South Africa is determined and discussed. Before any conclusions on the comparative advantage and international competitiveness of the sunflower industry in South Africa can be reached, it is necessary to calculate the RCA and RTA indexes. The RCA and the RTA indexes are provided in this chapter. The RCA and RTA indexes is also calculated for Argentina, one of the world's largest oilseed producers and South Africa's biggest competitor.

A value chain analysis of the sunflower industry in South Africa is discussed in this chapter to indicate the competitiveness of each segment of the sunflower value chain. In addition, factors that have an impact on the competitiveness of the sunflower industry are identified and discussed.

4.2 COMPARATIVE AND COMPETITIVE ADVANTAGE

The concepts of comparative advantage and competitiveness are two important foundations for understanding the importance of international trade in agriculture and to illuminate the underlying factors responsible for current trade patterns. Vollrath

(1991: 127) is among the earliest researchers to distinguish between comparative advantage and competitive advantage. He argued that comparative advantage is applied to efficient, well functioning and undistorted prices in markets. Where distortions exist competitive advantage is considered better to use.

According to Warr (1994: 8), comparative advantage refers to the ability of one nation to produce a commodity at a lower opportunity cost of other products forgone than another nation, while competitive advantage indicates whether a firm could successfully compete in the trade of the commodity in the international market given existing policies and economic structure.

4.2.1 COMPARATIVE ADVANTAGE IN THE SOUTH AFRICAN SUNFLOWER INDUSTRY USING THE RCA INDEX

In chapter 2, the original RCA index formulated by Balassa (1965) was discussed. According to Galetto (2003: 11), the RCA index is one of the most popular measures of competitive performance. The RCA of a particular commodity (for a specific country), is the share of the international market of that commodity divided by its share in the international market for all commodities. A RCA index of 1.1 for a particular industry (commodity) in a particular country means that its share of the world market is 10% higher than its share of total exports, and thus the country has a Revealed Comparative Advantage in the industry (commodity). A RCA lower than 1 indicates that the country has a comparative disadvantage. In this section the results of applying the RCA index to the sunflower industry in South Africa is discussed. FAO (2011) data were used for the calculations; data included the total world exports, as well as exports of value added sunflower seed products (sunflower oil and sunflower oilcake) of South Africa.

The different RCA index values for sunflower seed products in the South African value chain are indicated in Figure 4.1. Sunflower oil experienced the most revealed comparative advantage during the period from 1990 to 2008 (Figure 4.1) however, sunflower oil experienced a comparative disadvantage in 1990, 1994, 1995, 2003, 2004, 2006 and 2007. Sunflower seed also showed revealed comparative advantage during 1996, 1999 and 2008. With the drastic price increase in sunflower

seed and sunflower oil in 2006/07 and 2007/08, sunflower oil cake still showed a revealed comparative disadvantage (Figure 4.1).

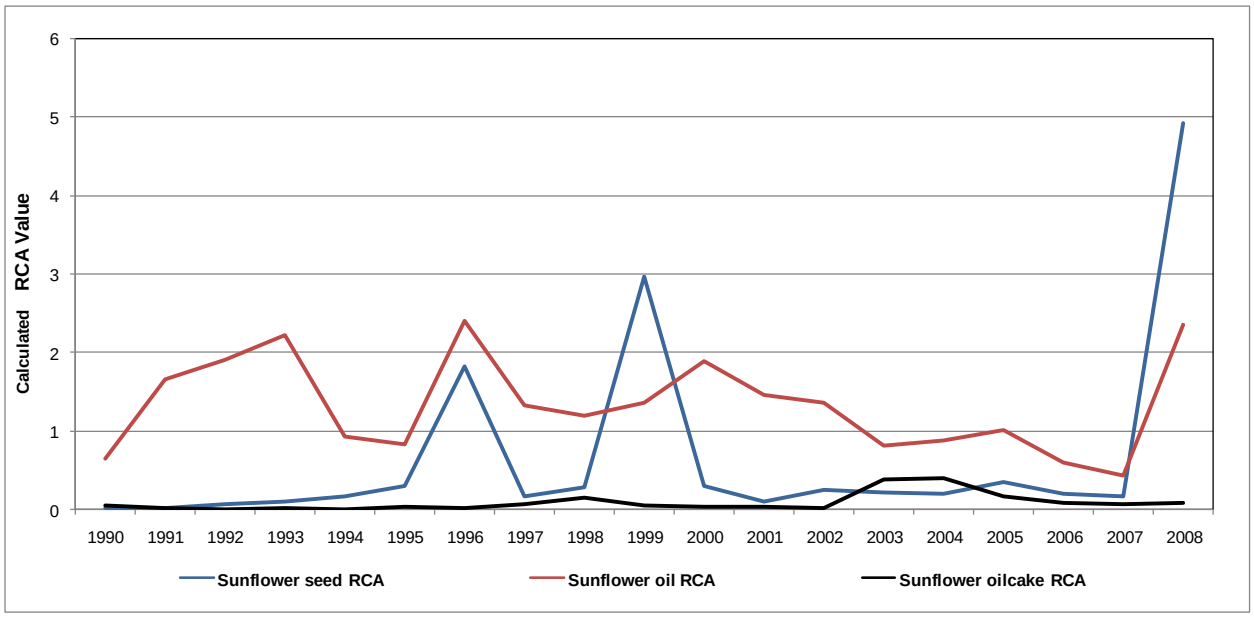


Figure 4.1: RCA index values for different sunflower products in the South African value chain.

Source: FAO (2011) and own calculations

4.2.2 COMPETITIVE ADVANTAGE OF THE SOUTH AFRICAN SUNFLOWER INDUSTRY USING RTA INDEX

In the previous section the RCA index were used to compare a country's share of the world market in one commodity with its share of all traded goods. In the following section the international competitiveness of the South African sunflower seed industry is calculated by using the RTA index. The RTA index accommodates both imports and exports, where as the RCA index only accommodate exports. Positive results of the RTA index will show international competitive advantage, as negative results will indicate a competitive disadvantage. Figure 4.2 show the results of the RTA index values calculated for the different sunflower products in the South African value chain from 1990 to 2008. According to Galetto and Cappellini (2003: 3), positive results on the RTA index shows international competitive advantages and vice versa.

From Figure 4.2 it is evident that most of the products in the sunflower seed value chain experienced an international competitive disadvantage in the past. Sunflower seed experienced an international competitive advantage in 1996, 1999, 2000, 2005, 2006 and 2008, while sunflower oil had an international competitive advantage in 1991, 2002 and 2008.

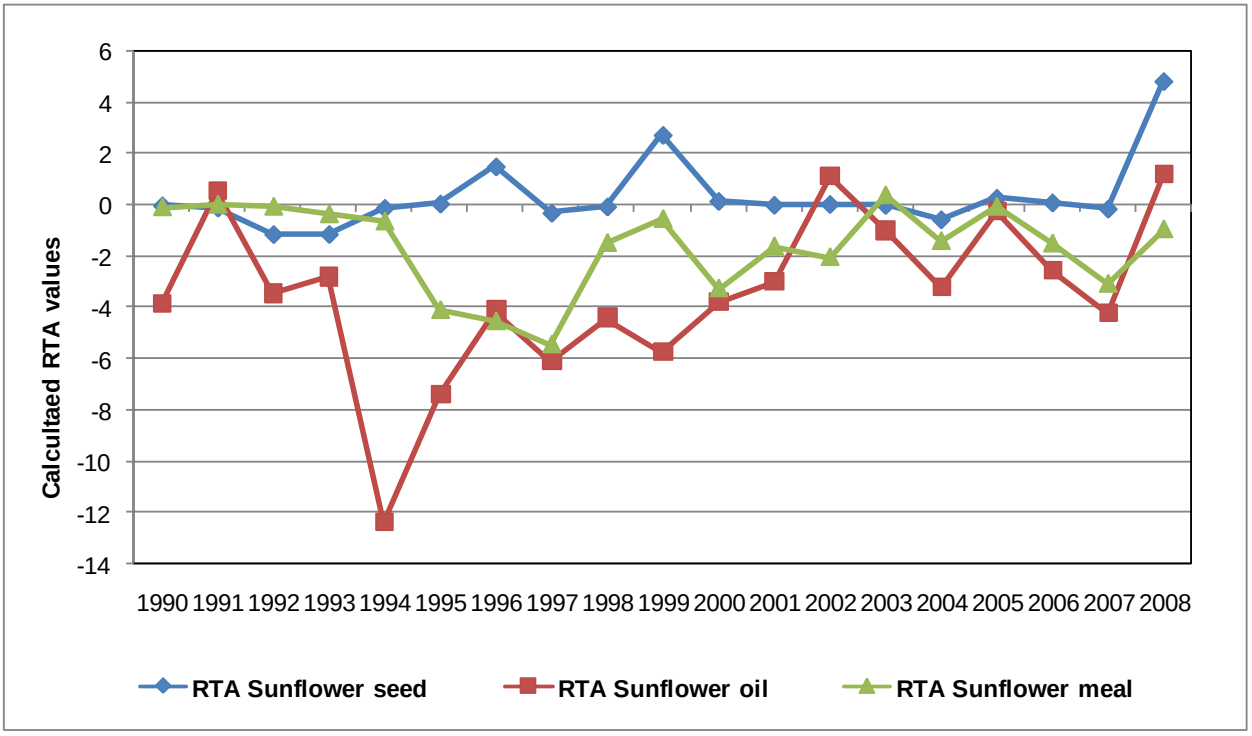


Figure 4.2: The RTA index values for the different sunflower seed products in the South African value chain

Source: FAO (2011) and own calculations

Form the results it is clear that there is a decrease in international competitiveness when moving from the primary to the processed products (sunflower oil and sunflower oilcake) in the sunflower value chain within South Africa. The large amount of crude, refined oils and oilcake imported in the country decreases the international competitiveness of sunflower oil and sunflower oilcake products. The reason for the imported crude, refined oils and oilcake is due to lower prices as well as the fact that South Africa is a net importer of sunflower oil and oilcakes.

4.3 COMPARING THE SOUTH AFRICAN SUNFLOWER VALUE CHAIN WITH THE ARGENTINEAN SUNFLOWER VALUE CHAIN

Argentina is South Africa's largest competitor in the international oilseed market and has the same counter-seasonal advantage (Hallat, 2005: 77). In the following section, the South African sunflower seed industry is compared to the Argentinean sunflower seed industry. The comparison of the RCA and RTA indexes of the Argentinean sunflower seed industry are compared to the results of the South African comparative and competitive advantage as calculated in the previous section.

4.3.1 COMPARING THE COMPARATIVE ADVANTAGE OF THE SOUTH AFRICAN SUNFLOWER INDUSTRY WITH THE ARGENTINEAN SUNFLOWER SEED INDUSTRY USING THE RCA INDEX

The RCA index values for Argentinean sunflower seed products (sunflower seed, sunflower oil and sunflower oilcake) is presented in Figure 4.3. The results of the RCA index indicate that all the values for the products of Argentinean sunflower included in the value chain is above 1, indicating that the Argentinean sunflower value chain has a revealed comparative advantage for sunflower seed as well as all its value added products. Compared to the South African RCA index (Figure 4.1), it is clear that Argentina has a revealed comparative advantage for the entire period for all the sunflower seed products whereas South Africa only had a revealed comparative advantage for sunflower seed and the value added sunflower seed products (sunflower oil and sunflower oilcake) experienced revealed comparative disadvantage for most of the period from 1990 to 2008.

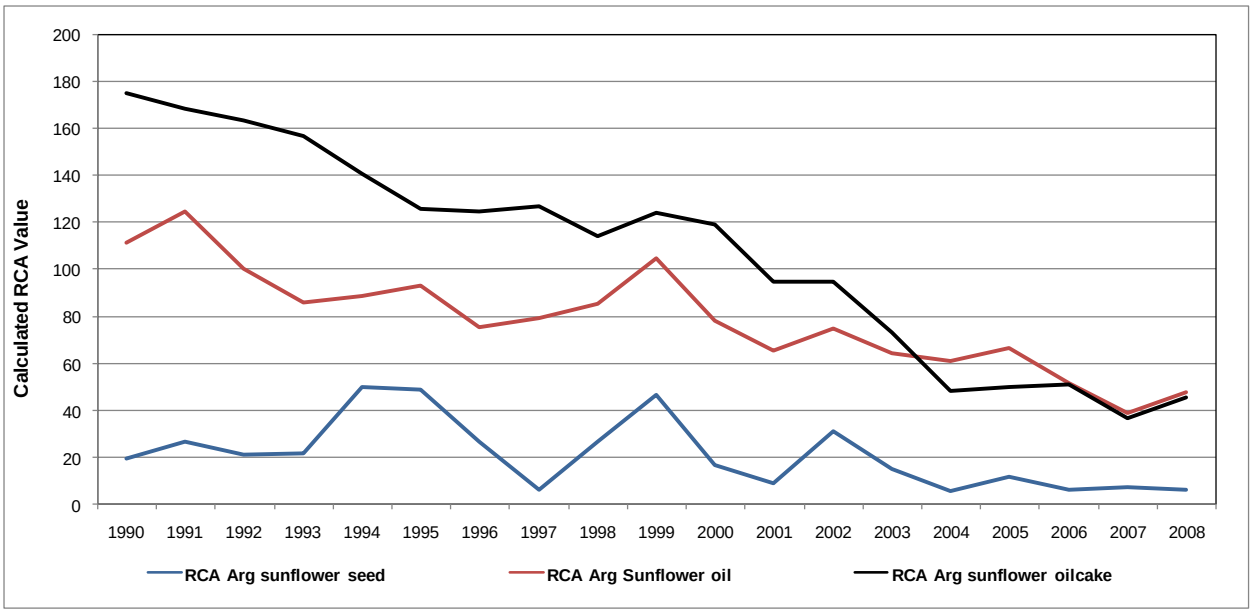


Figure 4.3: RCA index values for different sunflower products in the Argentinean value chain.

Source: FAO (2011) and own calculations

4.3.2 COMPARING THE COMPETITIVE PERFORMANCE OF THE SOUTH AFRICAN SUNFLOWER INDUSTRY INDEX WITH THE ARGENTINEAN SUNFLOWER SEED INDUSTRY USING THE RTA INDEX

In Table 4.1 the RTA index for the South African as well as the Argentinean sunflower seed industry is summarised, indicating the trends of the different value chains. Considering the RTA index for Argentina in Table 4.1 and comparing it to the RTA index for South Africa, it is clear that the South African sunflower seed value chain varied between an international competitive disadvantage and low competitive advantage. Argentina is internationally competitive in the whole sunflower seed value chain, while South Africa has experienced an international competitive disadvantage in the sunflower seed value chain.

Table 4.1: Comparing the competitive advantage of the South African and Argentinean sunflower value chain

South African Sunflower seed	2003	2004	2005	2006	2007	2008
RTA Sunflower seed	-0.01	-0.57	0.27	0.09	-0.15	4.81
RTA Sunflower oil	-1.00	-3.20	-0.25	-2.56	-4.21	1.20
RTA Sunflower meal	0.36	-1.43	-0.10	-1.53	-3.10	-0.97
Argentinean Sunflower seed						
RTA Sunflower seed	12.67	2.99	11.19	4.71	5.09	3.97
RTA Sunflower oil	64.29	61.13	66.30	51.70	38.74	47.59
RTA Sunflower meal	73.50	48.62	49.97	51.15	36.79	45.40

Source: FAO (2011) and own calculation

4.4 VALUE CHAIN ANALYSIS OF THE SOUTH AFRICAN SUNFLOWER INDUSTRY

The analysis of comparative- and competitive advantage as discussed in the previous section were calculated by means of trade data based on the FAO (2011) data. This analysis only indicated the comparativeness and competitiveness to world trade. From the results of the analysis it is evident that comparative and international competitive advantage is lacking for the value added sunflower seed products in South Africa. Various factors must be considered in the local value chain of the sunflower seed industry before it is determined whether the industry has a competitive advantage/disadvantage. A value chain analysis of the South African sunflower seed is discussed in the following section.

It is important to identify the different environments within the sunflower value chain in order to identify and measure the different driving forces that influences the competitiveness of the sunflower industry. In this study the three environments were identified as meso-, micro and macro environments as illustrated in Figure 4.4.

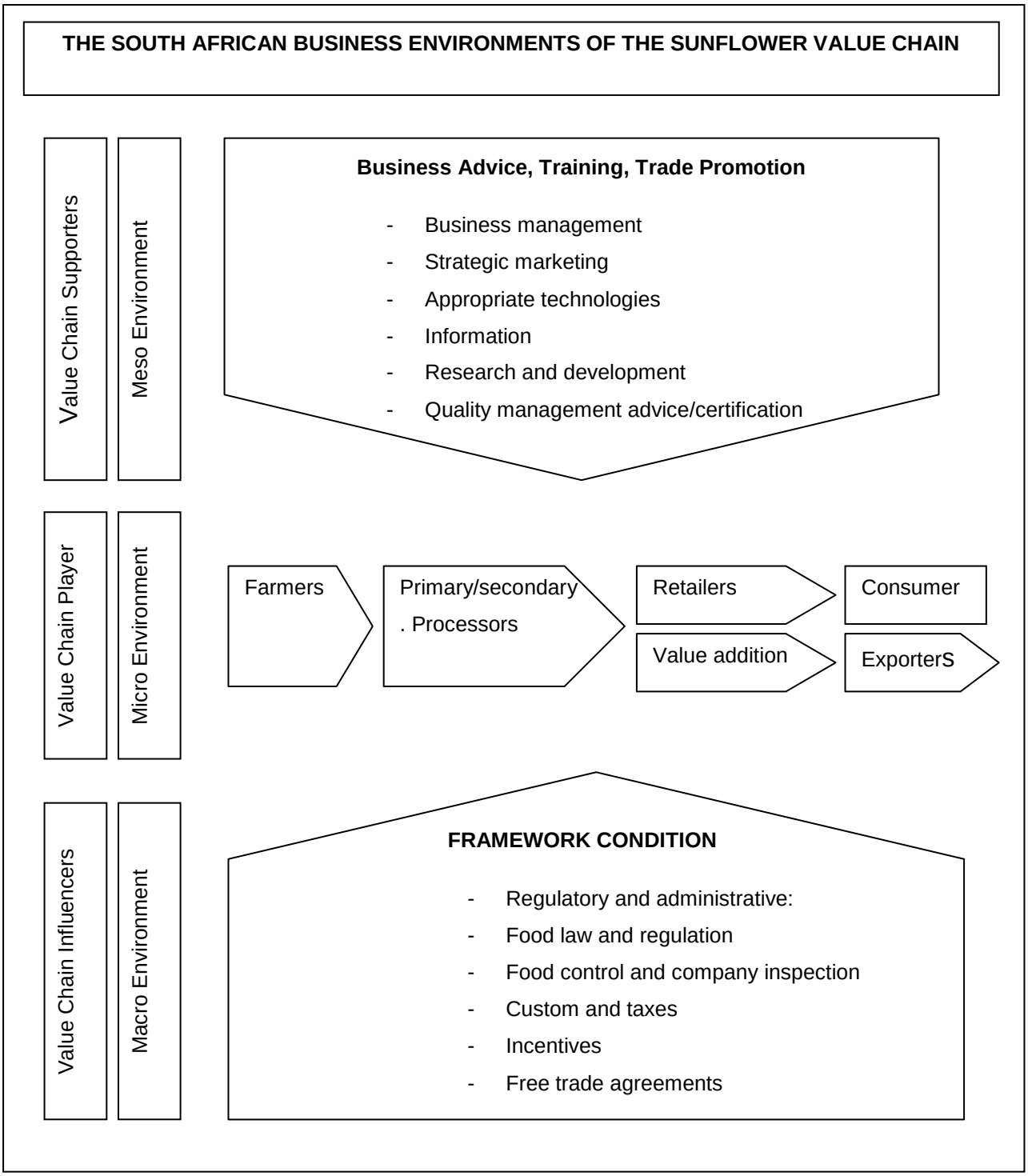


Figure 4.4: The different business environments of the sunflower value chain with in South Africa

Source: NAMC (2011)

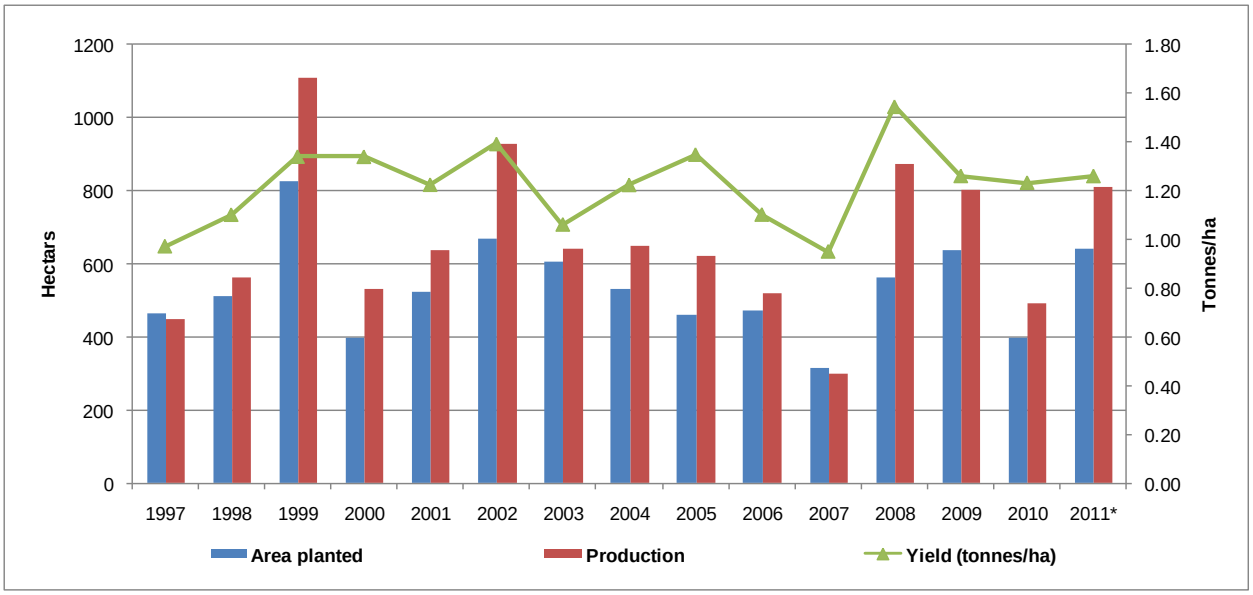
The meso-environment refers to the supporting institutions of the actual sunflower value chain. The supporting industries mainly include business advice and support,

quality assurance programs, skills transfer and information provision. The micro-environment relates to issues which can be managed by each role player in the industry's direct business environment. It also refers to the level of competition between role players. The impact of regulatory and administrative issues, global and local economic trends together with chance factors such as the exchange rate and the political environment are measured as influences within the macro-environment (NAMC, 2011).

4.4.1 SUNFLOWER SEED PRODUCERS

An important relationship exists between the area planted under maize and the area planted under sunflowers due to the nature of their substitutability. Sunflower seed can be planted from the beginning of November to the beginning of January, which is nearly the same planting timeframe for maize plantings. Sunflowers are well adapted to the South African hot and dry climate; the drought tolerance and the relatively low input cost of the crop are major advantages, while the short growth season of the crop renders it extremely suitable for producers who make use of adaptable crop rotation and/or fallow systems (Loubsher, 1999: 21).

The area planted to sunflower seed in South Africa has varied to a great extent over the past few seasons ranging from a record of 828 000 hectares planted in the 1999 season to 316 000 hectares planted during the 2007 season (Figure 4.5). This variability can be explained by the precariousness of weather conditions. The oversupply of maize on the local market in the 2010/11 season had a downward pressure on maize prices, while the sunflower prices for the 2011 season had great support and motivated producers to plant more sunflower seed (Van Zyl, 2010: 11). Favorable weather conditions and increased hectares planted with sunflower seed are the main two contributors for the larger production of sunflower seed for the 2011 season. It is clear from Figure 4.5 that the yield per hectare varied from 0.97 to 1.55 tons per ha which marginally increased since 1997, due to the above mentioned favorable weather conditions and increased hectares.



*Preliminary

Figure 4.5: South African sunflower production ('000 tons and hectares)

Source: SAGIS (2011)

Figure 4.6 illustrate the inverse relationship of maize and sunflower seed production in South Africa. This inverse relationship was seen in the 2010/11 season as discussed in the previous section where South Africa experienced an oversupply of maize creating pressure on maize prices. With the support of the sunflower seed prices for the 2011 season together with crop rotation; where farmers reallocate land from maize to sunflower seed, as it is illustrated (Figure 4.6) maize prices will increase as the surplus of maize decreases. From Figure 4.5 it is clear that there were a significant reallocation from maize to sunflower from the 2010 season to the 2011 season. When maize prices increases in the 2012 season the inverse relationship will have the effect of farmers switching from sunflower seed back to maize production.

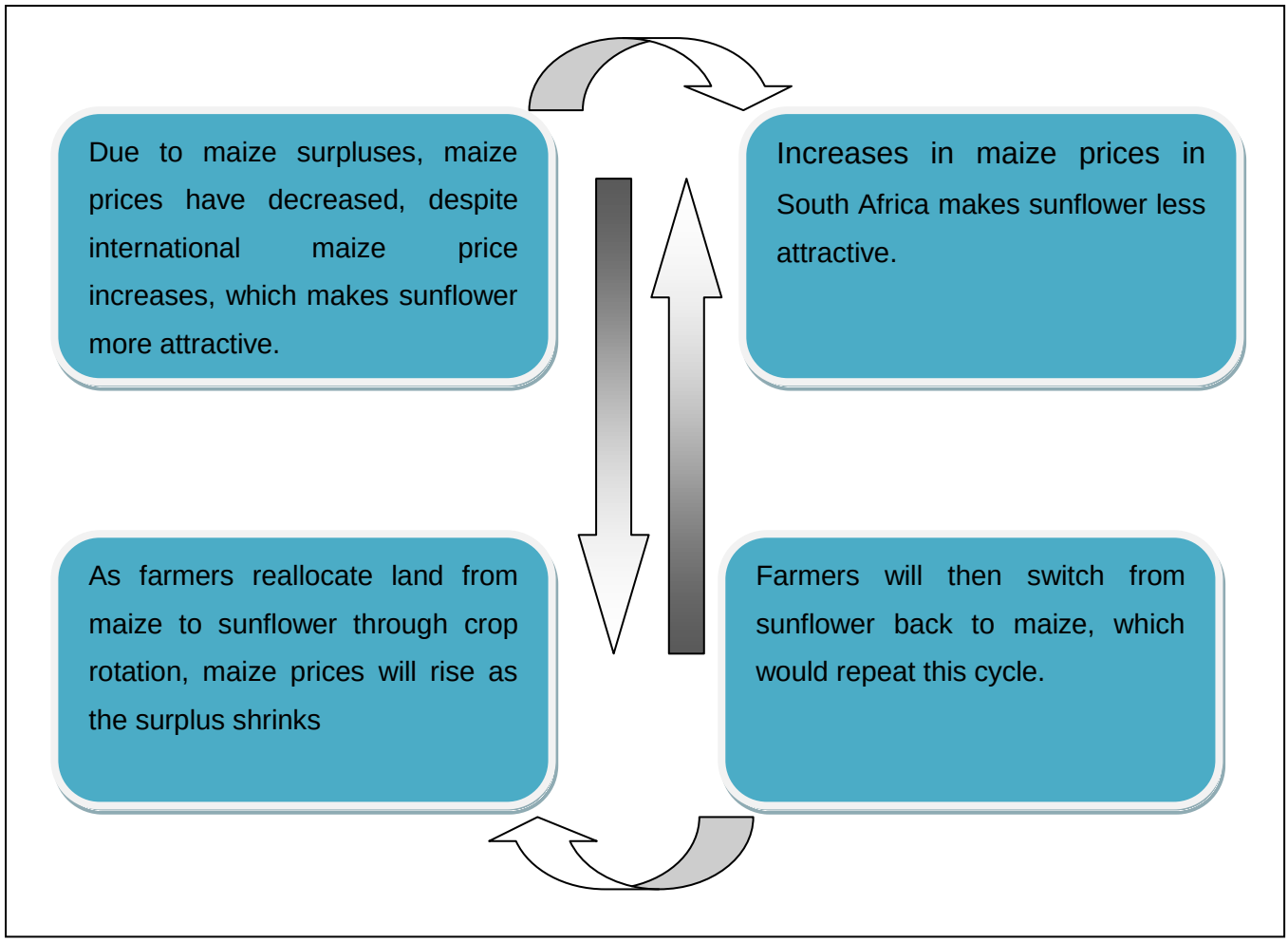


Figure 4.6: The inverse relationship between maize and sunflower production in South Africa

Source: NAMC (2011)

A producer's final decision to plant sunflower will depend on the profitability and the price relative to other suitable crops. In Table 4.2 the profit margins of sunflower and maize are presented for the period from 2006 to 2011. The calculations of the sunflower profit margin is based on the SAFEX price for the May contract traded on SAFEX between October and November for 2006 to 2011 and the maize prices were based on the July contract traded on SAFEX for the same period. From Table 4.2 it is clear that in 2011 it was more profitable for farmers to plant sunflower with a profit margin of 26.99% than maize which only had a profit margin of 9.64% within the planting window. As seen in Table 4.2 there were a significant change to the profit margins of sunflower seed and maize from 2006 to 2011 in South Africa.

Table 4.2: Profit margins of sunflower and maize in South Africa

	PRODUCTION YEAR					
Sunflower:	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Northwest	-36.31%	5.18%	51.10%	20.75%	19.15%	28.67%
Northwest Free State	-6.33%	22.57%	48.99%	33.23%	20.96%	30.27%
Eastern Free State	-33.45%	-24.29%	16.16%	3.96%	11.60%	22.01%
AVERAGE	**-25.36%**	**1.15%**	**38.75%**	**19.31%**	**17.24%**	**26.99%**
Maize:						
Northwest	16.63%	-34.90%	41.46%	36.96%	31.23%	15.04%
Northwest Free State	27.07%	27.54%	41.39%	48.20%	36.10%	21.05%
Eastern Free State	18.94%	-17.84%	27.50%	25.80%	13.27%	-7.16%
AVERAGE	**20.88%**	**-8.40%**	**36.79%**	**36.99%**	**26.87%**	**9.64%**

Source: GSA, SAFEX and own calculations

4.4.2 CRUSHERS OF SEED

Sunflower oil is the basic raw material for the preparation of margarine and spreads (Pretorius, 2000: 14). The industrial use of vegetable oils, especially for the production of bio-diesel are increasing globally, however there is currently no large sunflower oil bio-fuels production plants in South Africa. Only a few sunflower producers produce sunflower oil-based bio-diesel for own consumption (Lemmer & De Villiers, 2007: 2).

According to the NAMC (2011), processors often make decisions whether to process sunflower seeds or soybeans. The following section weighs the costs and the benefits of both commodities.

Sunflower:

- Demand for sunflower oil is high; most consumers prefer sunflower oil for cooking.
- Sunflower cake is viewed as inferior to soy cake due to its fibrous nature and lack of protein comparative to soybeans.
- Sunflower cake is primarily used in dairy/beef and with other ruminants such as goats and sheep.
- Sunflower seed produces twice the amount of oil as soybeans (Figure 4.7).
- Sunflower oil prices are trading at a premium against soy oil prices.
- Sunflower husk is also used as a source of fuel for processing plants.

Soybeans:

- Demand for soy cake is high, mainly for feed industry in particular poultry and pork.
- Soy cake is preferred over sunflower cake despite being more expensive.
- Soy yield almost double the amount of cake as sunflower (Figure 4.7), which is sold at higher prices than sunflower cake.
- Quality of soy cake has been reported as an issue due to inconsistency of the protein content.

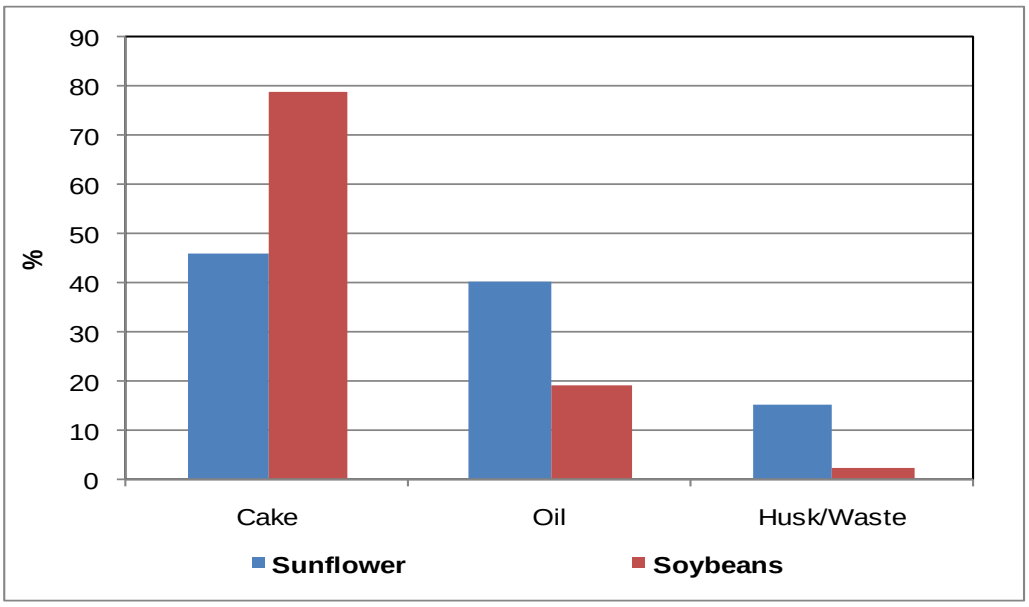


Figure 4.7: Percentage breakdown of oilseed product (%)
Source: NAMC (2011)

4.4.3 PROCESSORS OF SUNFLOWER SEED

Oilseed processing is highly capital-intensive and requires specialised knowledge and state-of-art technology. In South Africa there are eight large sunflower crushing plants with a total crushing capacity of 1.075 million tons (Table 4.3).

Table 4.3: Largest crushing plants in South Africa

LOCATION	PROCESSOR	CRUSHING CAPACITY (TONS)
Boksburg & Randfontein	Nola Industries	400 000
Southdale	Epic	200 000
Lichtenburg	Epko	170 000
Isando	Willowton Oil Mills	100 000
Randfontein	Continental Oil Mills	100 000
Pietermaritzburg	Capital Oil Mills	50 000
Isithebe	Elangeni Oil & Cake Mills	30 000
Pietermaritzburg	Sealake Industries	25 000
Total		**1 075 000**

Source: SAOPA (2008)

Table 4.4 illustrates the utilised crushing capacity of sunflower seed in South Africa from 2005 to 2010 an average of 56.59% of the total crushing capacity in South Africa was utilised during this period. The surplus crushing capacity available as shown in Table 4.4 allows the industry to expand at any given time. According to the DAFF (2003: 231) this phenomenon makes the crushing industry highly competitive since the utilisation of crushing capacity is readily available to anyone in the business.

Table 4.4: Sunflower utilised capacity ('000 tonnes)

	2005	2006	2007	2008	2009	2010
Capacity	1075	1075	1075	1075	1075	1075
Crushed	628	449	358	637	816	762
Available	447	626	717	438	259	313
Utilised capacity %	**58.42**	**41.77**	**33.30**	**59.26**	**75.91**	**70.88**

Source: SAGIS (2011)

4.4.4 LOCAL CRUDE OIL CRUSHING MARGIN

In this section the local sunflower crude oil is discussed. The estimates for local crushing costs, the possible crushing margin, and the crushers' realisation for the period 2006 to 2010 are presented in Table 4.5.

According to AC Nielsen (2010) the level of correlation between the SAFEX price of sunflower seed and the consumer price of sunflower oil is the highest when the SAFEX price is lagged by three months. Therefore, the SAFEX price of sunflower seed reflected in Table 4.5 is actually the average yearly nearby contract lagged by three months. For the purpose of these calculations, an average extraction rate of 39% is used for oil and 42% for oil cake. Thus, one ton of raw sunflower seed produces on average 390 kg of crude oil and 420 kg of oil cake. As shown in Table 4.5 the crusher's realisation varied between R119 to R1 723/ton seed over the period from 2006 to 2010

Table 4.5: Local supply for crude oil

	UNITS	**2006**	**2007**	**2008**	**2009**	**2010**
SAFEX price of sunflower seed	R/ton	2091	2925	4685	3312	3335
Transport cost: Silo to crushing plant	R/ton	113	124	137	150	131
Handling costs: Costs of crusher	R/ton	46	51	56	62	68
Storage cost: Cost of crusher	R/ton	133	146	161	177	192
Interest paid on investment	R/ton	140	140	141	142	103
PRICE CRUSHERS PAY FOR SEED	**R/ton**	**2523**	**3386**	**5180**	**3843**	**3829**
SUNFLOWER OIL CAKE, LOCAL	**R/ton oil**	1295	1897	2323	2587	2646
Cake contribution (42% cake from 1 ton seed)	R/ton oil	544	797	976	1087	1111
Oil contribution (39% oil from 1 ton seed)	R/ton oil	2380	3128	6299	4022	3700
Crushing margin	R/ton oil	401	539	2095	1266	983
Crushing costs	R/ton oil	281	324	372	428	492
Projected Profit/Loss	**R/ton oil**	**119**	**215**	**1723**	**838**	**490**
		29.79%	**39.94%**	**82.24%**	**66.19%**	**49.91%**

Source: SAFEX, AC Nielsen (2011) and own calculation

4.4.5 REFINERIES OF CRUDE OIL MARGIN

It is important to note that two possible sources for the supply of crude oil to the local refineries exist. The first source of supply of sunflower crude oil is the local crushers as discussed earlier and the supply of sunflower crude oil through imports. In Table 4.6 the import parity prices of sunflower crude oil for the period from 2006 to 2010 are calculated.

Table 4.6: Import calculations of sunflower crude oil

IMPORT OF CRUDE OIL	UNITS	2006	2007	2008	2009	2010
Sunflower Crude Oil, Argentina FOB	US$/ton	693	846	1583	931	950
Freight	US$/ton	53	95	80	40	45
Insurance (0,3% of FOB)	US$/ton	2	3	5	3	3
Import tariff (10% of FOB)	US$/ton	69	85	158	93	95
Discharge and clearing	US$/ton	58	75	96	124	160
Exchange rate	R/US$	6.76	7.09	8.28	8.43	7.32
Sunflower Crude Oil, Durban	R/ton	5917	7819	15918	10042	9174
Transport: Durban to Randfontein	R/ton	185	201	233	270	314
SUNFLOWER CRUDE OIL PRICE RANDFONTEIN	**R/ton**	**6102**	**8020**	**16151**	**10313**	**9488**

Source: SAFEX, AC Nielsen (2011) and own calculation

According to the NAMC (2011) the decisions of refineries to use imported oil or local processed oil are made based on the following factors:

- Exchange rate.
- Availability and price of domestic sunflower/soybeans.
- Availability and price of international sunflower/soy.
- Availability and price of international crude vegetable oil.
- Availability and price of refined oil.

Refiners' goals are to have a 90 -100% utilisation of their refineries to maximise their profitability for refined oil. Many refineries would rather halt processing than have their refineries run below full utilisation. In South Africa not all crushers have refining capacity and not all refineries have crushing capacity. Table 4.7 presents a list of oil refineries, which are currently members of the South African Oil processors Association (SAOPA, 2008).

Table 4.7: South African Refineries

LOCATION	REFINERS
Pietermaritzburg	Capital Oil Mills
Randfontein	Continental Oil Mills
Isithebe	Elangeni Oil & Cake Mills
Southdale	Epic Foods
Lichtenburg	Epko Oil Seed Crushing
Cumberwood	Hentiq 1320
Rivonia	Nedan Oil Mills
Randfontein	Nola Industries
Pietermaritzburg	Sealake Industries
Isipingo Beach	Sun Oil Refineries
Port Shepstone	Sunola Oil Mills
Durban	UBR
Isando	Willowton Oil Mills

Source: SAOPA (2008)

It is important to keep in mind that the value of the sunflower crude oil is derived from the import parity price of sunflower crude oil. In Table 4.8 the manufacture-to-retail margin is illustrated by deducting the total production costs of sunflower oil from the retail price of sunflower oil. For the purpose of these calculations the price of imported sunflower crude oil is used.

As represented in Table 4.8 the total costs of refinement are estimated for 2010 are R1 079/ton oil. These costs include the interest paid on investment, fixed costs and the variable costs. The total packaging costs (interest paid on investment, fixed costs, variable costs and distribution costs) are estimated at R1 808/ton oil. The total costs of refined sunflower oil (excluding packaging) and including a refinement loss of 6% are estimated at R11 032/ton oil. If packing and distribution costs are added to this value, the total cost of sunflower oil is estimated at R12 840/ton oil before it enters the wholesale and retail sectors.

The manufacturer to retail margin (Table 4.8) is calculated by deducting the total costs of sunflower oil from the retail price of sunflower oil. The sunflower oil retail price reflected in Table 4.8 is derived from 750ml of sunflower cooking oil. Taking the density of sunflower oil into account, it was calculated that 1454 bottles (750ml)

of cooking oil represents one ton of oil. Table 4.8 reports a manufacturer to retail margin of R5 862/ton sunflower oil (R18 703 – R12 840). This margin, includes the total costs of administration and marketing of the retailer and wholesalers as well as the profits of the wholesaler, retailer and refineries.

Table 4.8: Manufacture to retail margin

REFINEMENT	UNITS	2006	2007	2008	2009	2010
Sunflower crude oil price, factory @ Reef	R/ton oil	6102	8020	16151	10313	9488
Average annual prime rate	%	11.16%	12.50%	12.50%	12.00%	11.50%
Interest paid on investment	R/ton oil	57	84	168	103	91
Fixed costs	R/ton oil	286	329	378	435	500
Variable costs	R/ton oil	274	315	362	416	479
Refinement loss	R/ton oil	305	401	808	516	474
TOTAL COSTS OF REFINED SUNFLOWER OIL	**R/ton oil**	**7024**	**9149**	**17867**	**11783**	**11032**
PACKAGING						
Interest paid on investment	R/ton oil	65	95	186	118	106
Fixed costs	R/ton oil	183	210	241	278	319
Variable costs	R/ton oil	411	472	543	625	718
Distribution costs	R/ton oil	380	437	503	578	665
TOTAL COSTS OF SUNFLOWER OIL (incl packing)	**R/ton oil**	**8063**	**10363**	**19341**	**13381**	**12840**
SUNFLOWER OIL RETAIL PRICE	**R/ton oil**	**10425**	**16493**	**21535**	**18967**	**18703**
MANUFACTURE TO RETAIL MARGIN	**R/ton oil**	**2362**	**6130**	**2194**	**5586**	**5862**
		29.30%	**59.15%**	**11.34%**	**41.75%**	**45.66%**

Source: SAFEX, AC Nielsen (2011) and own calculation

4.5 FACTORS INFLUENCING THE COMPETITIVENESS OF THE SUNFLOWER SEED INDUSTRY IN SOUTH AFRICA

In Figure 4.8 the different factors that influence the competitiveness of the sunflower industry in South Africa are illustrated. The local supply of sunflower seed is an important factor in the industry, which can reduce crushing activities when there are not sufficient sunflower seeds available in the country. With the free market

environment in South Africa, price events on the international market as well as changes in the Rand/Dollar exchange rate will have a significant effect on local prices. In this section the factors with the highest probability of affecting the competitiveness of the sunflower seed industry in South Africa is discussed.

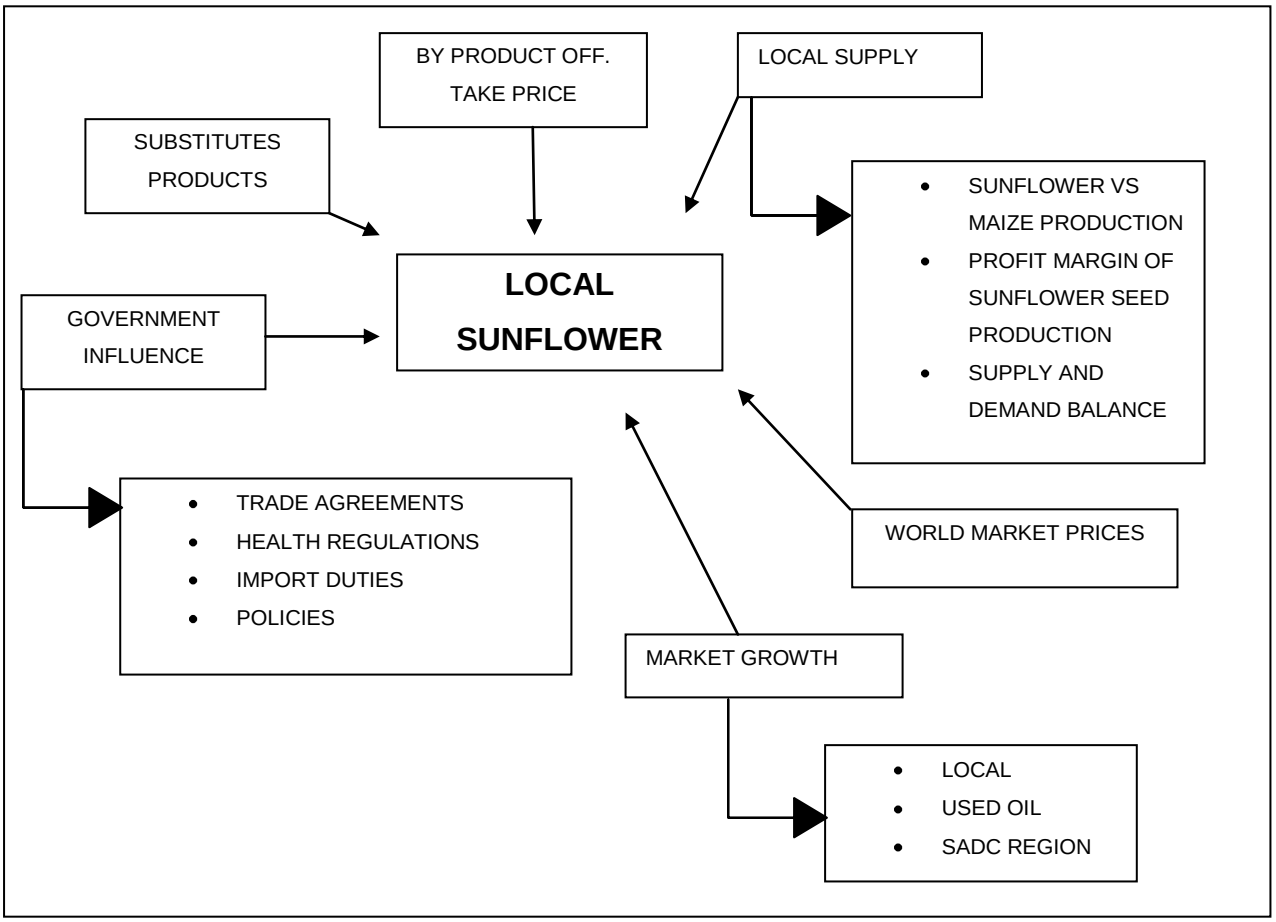


Figure 4.8: Factors affecting the South African sunflower seed industry

Source: Fourie (2002)

4.5.1 LOCAL SUPPLY OF SUNFLOWER SEED

The local supply of sunflower seed is one of the most important drivers of the South African sunflower seed industry. In a study conducted by Hallat (2005: 87), 33% of the correspondents indicated that they had completely suspended their crushing activities due to low production levels of sunflower seed over the past few years. The volume of sunflower oil produced in South Africa is directly related to the local sunflower seed crop produced. Sunflower seed production fluctuated between 300

000 tonnes and 1.1 million tonnes from 1997 to 2011. This fluctuation in the local sunflower seed production creates a problem in terms of long-term planning and investment decisions for crushing plants in South Africa. The sunflower industry is highly capital-intensive and need to regularly invest in new technology to stay competitive.

South Africa is a net importer of sunflower oil, it is important to note that sunflower oil is imported and not the sunflower seed. South Africa mainly imports sunflower crude oil from Argentina. Figure 4.9 shows the trend in sunflower crude oil imports and local production of sunflower crude oil in South Africa from 2003 to 2010. From 2005 South Africa experienced an increase in imports from 36 071 tonnes to 166 522 tonnes in 2007. From 2008 there was a decline in the import of sunflower crude oil into South Africa, mainly due to the higher local sunflower seed production in 2008 to 2010. The fact that South Africa is a net importer of sunflower crude oil mainly from Argentina, will transmit any price changes in sunflower seed or crude oil in Argentina into the South African sunflower-to-sunflower oil value chain.

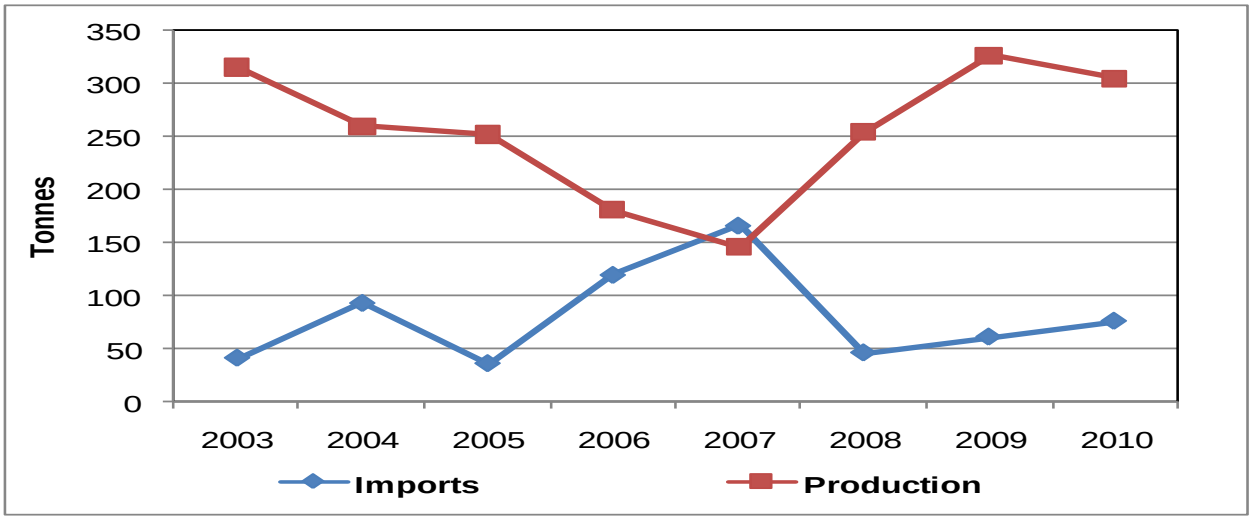


Figure 4.9: The local production and imports of sunflower crude oil

Source: SAGIS (2011)

Figure 4.10 indicates the trend in local sunflower crude oil prices from 2003 to 2010. It is clear from Figure 4.9 that the declining imports of sunflower crude oil, the declining trend in the international sunflower seed prices and the increase in domestic production of sunflowers brought some relief in the sunflower crude oil prices on the local market.

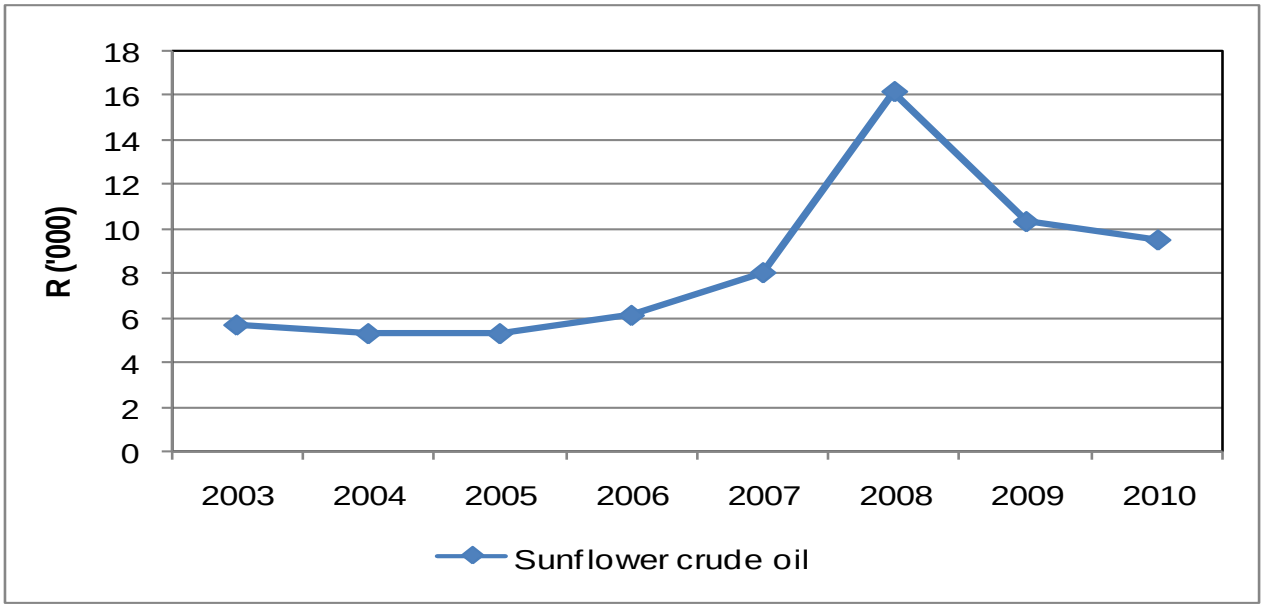


Figure 4.10: Sunflower crude oil prices

Source: AC Nielsen and own calculation

4.5.2 WORLD MARKET PRICES

The international sunflower seed and sunflower oil markets experienced drastic price increases between 2006/2007 and 2007/2008. Figure 4.11 indicates the international prices of these commodities. Prices changed steadily in 2006 and from mid 2007 these prices began to increase drastically until mid 2008 after which they peaked and then dropped drastically to the end of 2008. International sunflower seed and sunflower oil prices increased from US$ 462/ton and US$ 999/ton in July 2007, to US$ 763/ton and US$ 1692/ton in July 2008. This reflects a 65% and 69% increase respectively.

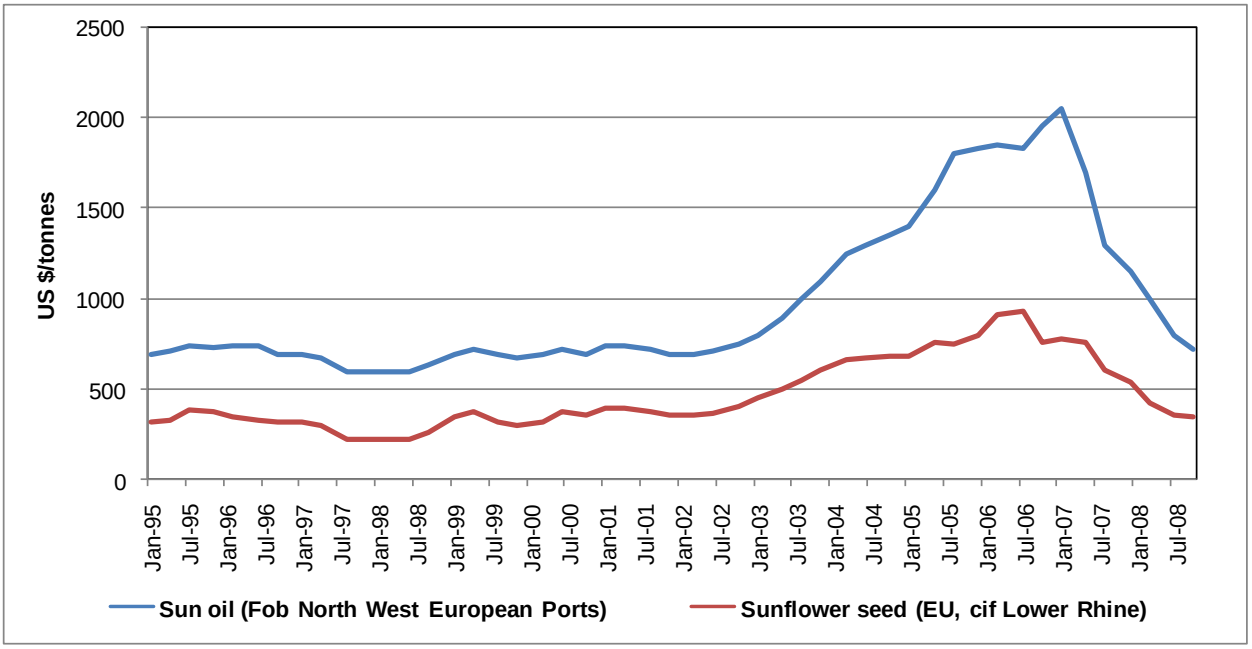


Figure 4.11: The international market price of sunflower seed and sunflower oil

Source: AC Nielsen (2008)

The Rand/Dollar exchange rate has an influence on the local sunflower oil prices. Prices on the international market are traded in terms of US Dollar per ton and therefore the Rand/Dollar exchange rate has an influence on local prices which could either amplify or reduce any changes in the international market. The effect of depreciation in the exchange rate on local agricultural commodities was illustrated in 2001 when the value of the Rand depreciated by 66% against the US Dollar within a period of five months. During this period the SAFEX nearby month contract sunflower seed price increased by 41% while international sunflower seed prices increased by only 2.6% (Van Zyl, 2010: 27). The local sunflower oil price is determined by the import parity price and the exchange rate is therefore almost fully transmitted to the local sunflower oil price.

4.5.3 MARKET GROWTH

The crushing margin of sunflower seed improved drastically from 2006 due to the higher local sunflower oil- and oil cake prices. The higher prices received by crushing plants increased the local demand for sunflower seed. With household

income which has increased over the last few years and the consumer being more health orientated, an increase in the demand for processed healthy food products is expected. A Trade and Industrial Policy Strategies (TIPS) working paper (Mather, 2005) stated that the South African Development Community (SADC) will become a more important market for South African processed food exporters, which may also have a positive effect on the demand for locally produced vegetable oil. The domestic use of sunflower oil will increase over time due to the increase in population and the growth of the real capita income.

4.5.4 SUBSTITUTE PRODUCTS

Sunflower oils are substituted with soybean and palm oils for the production of vegetable oil blends. From Table 4.9 it is clear that there is an increasing trend in the usage of these substitute oils. There was a decrease in the consumption of sunflower oil from 426 000 tonnes in 2009 to 345 000 tonnes in 2011. Soybean oil increased during the same period from 150 000 tonnes to 265 000 tonnes. This was mainly due to lower prices of soybean and palm oils.

Table 4.9: The consumption of soybean oil, sunflower oil and palm oil in South Africa (tonnes)

Marketing year	**2009**	**2010**	**2011**
Sunflower oil	426 000	330 000	345 000
Soybean oil	150 000	250 000	265 000
Palm oil	331 000	335 000	343 000
TOTAL	**907 000**	**915 000**	**953 000**

Source: USDA (2010)

The import of the cheaper soybean and palm oil are at the expense of the sunflower oil due to the competitive prices of these oils. This poses as a major threat to the local sunflower oil crushing industry.

4.5.5 GOVERNMENT INFLUENCE

Trade-related government policies are known to have a significant effect on the agricultural sector. The sunflower oilseed crushing industry in South Africa is

currently protected by 10%, 6.6% and 9.4% ad valorem import duty levied on imported edible oils, oilcake and seed respectively. In February the South African Oil Processors Association called for a drop in the import duty on edible oils and oilseeds so that the savings could be passed on to consumers (SAOPA, 2008). Although the reduction of the import duty might have a positive effect on the rising food prices on the short run, it might have a significantly negative impact in the long run, as it will have a negative impact on the crushing margin of the crushing plants, which will eventually have a depressing effect on the sunflower seed price (Van Zyl, 2010: 28).

4.5.6 BY-PRODUCT OFF-TAKE PRICE

The demand of sunflower oil is limited by the demand of the by-product sunflower oilcake generated from crushing sunflower seed. It is clear from Figure 4.12 that the sunflower oilcake traded at a significant discount in 2008, 2009 and 2010, when the production of sunflower oilcake was high. The price of sunflower oilcake will need to trade at a significant discount against imported soybean oilcake to stimulate demand due to the fact that sunflower oilcake are regarded as a low level product. The locally produced sunflower oilcake price is influenced by the international price of imported soybean oilcake.

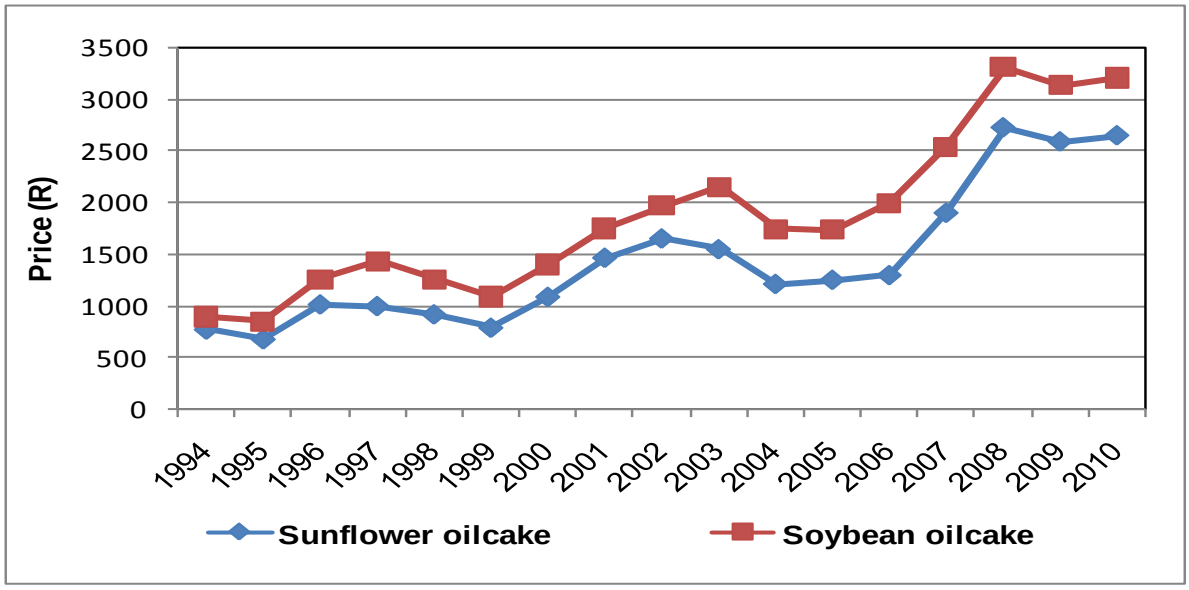


Figure 4.12: Prices of sunflower and soybean oilcake

Source: Van Zyl (2010)

4.6 CONCLUSION

The results of the RCA analysis of the South African sunflower industry indicated that sunflower seed in their primary form have better internationally RCA, while value added sunflower seed products have a revealed comparative disadvantage. According to the RTA analysis, sunflower seed in their primary form have the highest international competitive advantage.

Comparing South Africa with Argentina the analysis found exactly contrasting results for South Africa and Argentina for competitive advantage of the sunflower seed industry. South Africa has a better relative competitive advantage for sunflower seed in their primary from, where Argentina has a bigger relative competitive advantage for value added sunflower seed products.

In this chapter a value chain analysis of the local sunflower industry in South Africa were conducted to identify the different driving forces which influence the competitiveness of the sunflower industry. According to the FPMC (2003: 2), 95% of all sunflower seed produced in South Africa is destined for the processing industry for the production of sunflower oil; this crushing activity is the major value adding activity in the value chain. The largest crushing plants in South Africa were identified and it was determined that crushing are currently underutilised.

The sunflower industry is price driven. South Africa is a large net importer of sunflower oil and therefore the local sunflower oil price is determined by the import parity price of Argentinean sunflower oil. The local sunflower oilcake price is a function of the local soybean price, which again is determined by the import parity of Argentinean and the local sunflower oilcake production.

With crushing margins of sunflower seed improving due to higher local sunflower oil and oil cake prices there was an increase in the local demand for sunflower seed. The import of the cheaper soybean and palm oil is at the expense of the sunflower oil due to the competitive prices of these oils. This poses as a major threat to the local sunflower oil crushing industry.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 INTRODUCTION

International competitiveness of countries is a growing concern for governments and firms worldwide (Kettel, 2006: 65). Producers and agribusinesses now have to position themselves as business driven competitors in a less controlled, free market and new trading environments. From the literature reviewed it is evident that the area planted with sunflower seed in South Africa has varied to a great extent over the last decade. This variation is due to the inverse relationship between sunflower seed and maize production and the precariousness of the weather conditions. The analysis of the competitiveness of the sunflower seed industry in South Africa shows that sunflower seed is competitive in the primary form, but when it comes to the processing of sunflower seed the South African industry is not competitive. The following section summarises the most important findings of the study.

5.2 SUMMARY

5.2.1 INTRODUCTION

Sunflower seed is important to South Africa due to the contribution it makes to the gross value of production of agricultural commodities, sunflower seed is the third largest crop produced in the country. The fact that the competitiveness of the South African sunflower industry remains a concern motivated this study. The competitiveness of the industry was determined by calculating RCA and RTA indexes and by analysing the sunflower seed value chain.

5.2.2 LITERATURE REVIEW

The agricultural industries in South Africa are facing a number of challenges that affects competitiveness. According to Porter (1990: 76), productivity is one of the most important factors of competitiveness. The Porter diamond model stressed the determinants for a nation to be competitive based on four country-specific determinants and two external variables, chance and government. These country-specific determinants include:

- Factor conditions.
- Demand conditions.
- Related and supporting industries.
- Firm strategy, structure and rivalry.

Porter's method evaluates the competitiveness of the producer and all the participants in the value chain. This method allows the identification and analysis of the of the structure of a sector and points out the strengths and weaknesses. Comparative advantage and being competitive in an industry have become very important factors for most South African industries. The concepts of comparative advantage and competitiveness are two important foundations for understanding the importance of international trade in agriculture and to illuminate the underlying factors responsible for current trade patterns. Country-specific advantages emphasises location as a source of international competitive advantage for firms whereas comparative advantages emphasises the sector composition of trade between countries. A value chain analysis is necessary to indicate the competitiveness of each element or activity in a particular value chain. According to Porter, the value chain analysis describes the activities within and around an organisation and relates them to an analysis of the competitive strength of the organisation.

5.2.3 INDUSTRY OVERVIEW

Oilseed production is growing globally, this growth is also present in the South African sunflower seed industry. In Chapter 3 the South African sunflower seed industry is compared to the international industry and discussed. Sunflower seed production is

currently the most important oilseed produced in South Africa. South Africa only produces 2% of the total world production of sunflower seed and is a net importer of vegetable oil and oilcake products.

5.2.4 RESEARCH FINDINGS AND DISCUSSION

From the results of this study it is evident that the South African sunflower industry has a beter international RCA in its primary form than in the value added sunflower seed products. From the analysis of the RCA and RTA it is clear that comparative as well as international competitive advantage in value added sunflower seed products is lacking.

Argentina is South Africa's largest competitor in the oilseed market, mainly due to the fact that both countries have the same marketing period. Argentina has a relatively high competitive advantage in value added sunflower seed products, while South Africa has a competitive disadvantage for value added sunflower seed products. Argentina has a much higher competitive advantage in value added sunflower seed products than sunflower seed in their primary form, exactly the opposite of the South African situation.

The comparative and competitive advantages of the sunflower seed industry was calculated by means of trade data. From a local point of view, various factors must be considered before it can be said that the value chain of the sunflower seed industry in South Africa has a competitive disadvantage/advantage. An analysis of the South African value chain was done to give a better indication of why value added sunflower seed products experience a competitive disadvantage. The results of the analysis forms part of the conclusion of the study and are discussed in the next section.

5.3 CONCLUSION

The results of this study indicate that the South African sunflower seed industry is struggling with a competitive disadvantage in terms of its value added sunflower seed products. Due to these results, value chain analysis of the sunflower seed industry

was conducted in order to identify the different driving forces that influence the competitiveness of the sunflower seed industry.

According to the FMPC (2003: 2), 95% of all sunflower seed produced in South Africa are destined for the processing industry for the production of sunflower oil, this crushing activity is the major value adding activity in the value chain. The largest crushing plants in South Africa were identified and it was determined that crushing capacity are underutilised in South Africa. The presently underutilised crushing capacity is due to the cheap import of soybean and palm oil due to the competitive prices of these oils. According to industry, this poses as a major threat to the local sunflower oil crushing industry. The fact that large amounts of crude oil are imported into South Africa makes it very difficult for large and small local oilseed crushers to survive.

The sunflower industry is price driven; South Africa is a net importer of sunflower oil and therefore the local sunflower oil price is determined by the import parity of Argentinean oil. From the results of the value chain analysis the crushing margins have improved drastically over the last years due to higher sunflower oil and sunflower oil cake prices.

The processing of oilseeds are highly capital intensive and requires specialised knowledge and state-of-the-art technology to stay competitive. From a survey done by Hallat (2005: 93) it was clear that only 45% of oilseed crushers and refineries improve their practices often. This indicates that there are still improvements to be made in the South African oilseed crushing and refinery industries focused on research and technology. According to Porter (1990: 85), it is the key factors (skilled labour, capital and infrastructure) that are a major determinant of competitive advantage.

5.4 RECOMMENDATIONS

To improve the competitiveness of the South African sunflower seed industry, more competitive firms need to be more cost competitive; improve quality; launch new products; invest in new more advanced technologies and be innovative. Medium and small processors are experiencing pressure from larger processors, as the oilseed

industry is currently competing almost just on price. Oilseed processors in South Africa do not receive subsidies like in many other countries. This results amongst others in the importation of cheaper oilseed products into South Africa. The ever changing environment makes it important for the industry to innovate constantly. Higher education and urbanization increases the demand for healthier and safer food. This puts pressure on food processors. Value chain management can be viewed as an important way to improve competitive advantage. If only certain actions of the value chain are performed efficiently, the full potential for value-adding will not be realised.

A strong set of related and supporting industries is important to the competitiveness of firms. Research facilities, railway networks, co-operatives, suppliers, etc. will need to be improved in order to increase the competitiveness of the sunflower seed industry in South Africa.

From the study it is evident that the sunflower industry competes on price. Small processors find it very difficult to compete with the large processors due to the fact that the industry is price driven. Competing on quality and focusing on niche markets will give small processors opportunities in the industry. Increased competition in the local market is an important factor to stimulate innovation, which can lead to international competitiveness in the end (Hallat, 2005: 114).

South Africa has a competitive disadvantage in the value added sunflower seed products and emphasis should be put on this area. Health issues are of great importance in the local as well as global market and the production of a healthier vegetable oil has become a necessity in this industry. Sunflower oil is healthier than most other food oils on the market, and as this is the oilseed mainly produced in South Africa, innovation in this commodity will lead to great improvement in the competitiveness of the sunflower seed industry. A bigger variety of oils for the health-conscious consumers must be developed. An ultra-premium frying oil named Sunflo Platinum Oil has been developed in South Africa, ensuring consumers superior quality, maximum levels of anti foaming agent, maximum levels of anti-oxidants and cholesterol free (Hallat, 2005: 116). Better research, innovation and technology can bring more products like Sunflo Platinum Oil. This will guide the industry to move away from competing on price only.

It is very important to note that the competitiveness of the sunflower seed industry in South Africa cannot be achieved without the help of the government. Policy issues must be put in place to avoid the importing of cheaper crude vegetable oils as well as bottled cooking oils in South Africa. According to animal feed manufactures, a decrease in the availability of sunflower oilcake is largely explained by a decrease in local sunflower crop and crushing activities, resulting in the lower availability of sunflower oilcake.

5.5 RECOMMENDATIONS FOR FURTHER RESEARCH

- Supporting industries in the South African sunflower seed industry.
  Supporting industries in the South African oilseed industry must be identified. Recommendations must be made in order to overcome this problem.
- The opportunities in the South African sunflower seed market.
- Technology development in the South African sunflower seed industry.
  Technology is an important factor in the competitiveness of industries. Research must be done on the technology currently used in the South African oilseed industries, and the technology used by other major oilseed producers. The difference in the profit margins of the South African crushing and refining industries against those of Argentina, as it is more competitive in value added oilseeds. What can be done to make South African oilseed industries more competitive in the value added oilseed industry, and to make South Africa one of the worlds' technology leaders in the oilseed industry.
- The demand for sunflower oil and sunflower oilcake products in South Africa.

  The demand conditions of the South African oilseed industry, as it is an important determinant factor for relative competitiveness. In this study the consumer needs must be analyzed. What do consumers want in oilseed products, and what can the processors do in fulfilling their needs. The possibility of niche markets must be studied.

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