AN EVALUATION OF THE COMPETITIVENESS OF THE SOUTH AFRICAN AGRIBUSINESS SECTOR

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An evaluation of the competitiveness of the South African agribusiness sector

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? My wonderful wife, Jurinda, and beautiful daughter Suandri, for their love, support and patience.

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ABSTRACT

The objective of this study is to conduct a comprehensive analysis on the competitiveness of the agribusiness sector in South Africa. Neither a clear definition of competitiveness nor a comprehensive framework for analysing competitiveness has been developed for agriculture in South Africa. Hence, a definition for competitiveness has been formulated as being *the ability to compete successfully in order to achieve sustainable growth within the global environment, while earning at least the opportunity cost of returns on resources employed*. The definition is driven by factors related to the comparative and competitive advantages of an industry and the manner in which this is manifested by sustainable trade.

Five important aspects regarding competitiveness emerged, namely: competitiveness is a dynamic process, and not an absolute state of affairs; competitiveness can only be

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assessed within a relative sense; competitiveness is a tool to enable a continuously exploitation of the market reality for gain and profits relative to other competitors; competitiveness is a holistic viewpoint on the ability to sustain the gains achieved through trade and it is dependant on certain key success factors and constraints that must be identified and managed; and in order to sustain competitiveness it is important to continuously attract scarce resources from other economic endeavours.

A 5-step framework has been developed for measuring and analysing competitiveness in the agribusiness sector. Three instruments emerged from this *viz* the **Agribusiness Competitiveness Status** index **(ACS)** based on the Relative Trade Advantage (RTA) method; the **Agribusiness Executive Survey (AES)** based on the determinants of competitiveness, as described by Porter; and the **Agribusiness Confidence Index (ACI)** measuring the status of the decision-making environment in which agribusinesses are positioned to perform

The **ACS** index supports the definition developed on competitiveness. From the measurement it is evident that the South African agribusiness sector is marginally competitive but ever increasing. A definite positive trend is present in the competitiveness of the sector from 1992 onwards. There are, however, varying rates of competitiveness between the different value chains in the sector; some are highly competitive i.e. wine, some are marginally competitive i.e. sunflower and some are not competitive i.e. cotton. A general notion of decreasing competitiveness exists in the value chains - implying that value adding opportunities in the sector are restricted.

The **AES** is used to determine the views and opinions of executives in the agribusiness environment on factors constraining and enhancing competitiveness. The high cost of crime, inflexible labour policy and the competence of the personnel in the public sector are some of the factors constraining the competitiveness of the sector. The production of affordable, high quality products, intense competition in the local market and continuous

innovation are some of the important key success factor enhancing the competitiveness of the sector. The sector also demonstrates a positive trend in the determinants of competitiveness.

A clear relationship exists between changes in the decision-making environment and the competitiveness performance of the sector. This relationship influences the sustainability of the competitiveness status of the sector. The **ACI** analysis indicated that trends in the business confidence of the sector are influenced by a complex set of activities and expectations which includes climatic conditions, changes in the exchange and interest rates, economic growth and changes in turnover and nett operating income.

The framework developed in this study combine quantitative and qualitative analyses to develop strategies to enhance the competitiveness of the sector. The analytical and empirical content and the resulting findings therefore enable this study to act as a basis for strategic planning, policy development and strategic positioning by the agribusiness sector in South Africa and will allow for future monitory and analysis of competitive performance. A number of agricultural industries i.e. wine, beef, wool have already made use of this framework with good effect.

For further research it is recommended that the framework be used to do comprehensive industry analysis on the competitiveness of the most important food chains in Southern Africa. This information can be used to investigate opportunities for supply chain integration in Southern Africa that can provide the agricultural drive required by NEPAD to be successful.

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LIST OF ACRONYMS AND ABBREVIATIONS

ABC	Agricultural Business Chamber
ACI	Agribusiness Confidence Index
ACS	Agribusiness Competitiveness Status
AES	Agribusiness Executive Survey
AGRIMASS	Agribusiness Management Aptitude and Skills Survey
AVCASA	Crop Protection and Animal Health Association
BEE	Black Economic Empowerment
CPI	Consumer Price Index
DRC	Domestic Resource Costs
EU	European Union
FAO	Food and Agricultural Organisation of the United Nations
FDI	Foreign Direct Investment
FSSA	Fertiliser Society of South Africa
GDP	Gross Domestic Product
GMO	Genetically Modified Organism
HO	Hechsher-Ohlin
IMD	International Institute for Management Development
ISMEA	Institute of Mathematical and Economic Sciences Applied
NAMC	National Agricultural Marketing Council
NCM	National Chamber of Milling
OECD	Organisation for Economic Co-operation and Development
PAM	Policy Analysis Matrix
PPI	Production Price Index
R&D	Research and Development
RC	Revealed Competitiveness
RCA	Revealed Comparative Advantage
RER	Real Exchange Rate
RMA	Relative Import Advantage
ROR	Rate of Return

RSA	Republic of South Africa
RTA	Relative Trade Advantage
RXA	Relative Export Advantage
SAAMA	South Africa Agricultural Machinery Association
SACOB	South African Chamber of Business
SADC	Southern African Development Community
SAGIS	South African Grain Information Services
SANSOR	South African National Seed Organisation
UK	United Kingdom
USA	United States of America
WEF	World Economic Forum
WTO	World Trade Organisation

CHAPTER ONE

DEFINING THE COMPETITIVE ENVIRONMENT FOR THE SOUTH AFRICAN AGRIBUSINESS SECTOR

1.1 INTRODUCTION

Globalisation of the economy has contributed many new challenges to agribusinesses around the world. Agribusinesses need not only to compete in their domestic market, but also to compete in foreign markets and develop strategies to induce new customers in new markets to buy their products. The issues of competitiveness and comparative advantage have become important for agribusiness managers, strategic planners, government and policy makers, alike. These issues also have important implications for both society and its business organizations. At organisational level, companies cannot sustain their financial relevancy and growth without producing and marketing competitive products and services. Executives have come to realize that, in order to survive and continue to penetrate markets, companies must compete aggressively and in an economical sustainable manner, as opposed to "merely coping". In the broader context of society, nations failing to achieve competitive advantages and failing to nurture businesses in high-value-added sectors are destined to have a low standard of living, constrained national security and jeopardize their independent political actions and economic destiny (Ali, 1992).

From the perspective of local agribusinesses, the global "playing field" is everything except equal – competitors draw from natural resources and labour pools which vastly differ in levels of quality, skill and costs. Different countries also have varying regulatory environments that impact differently on their domestic agribusinesses (Organisation for Economic Co-operation and Development, 2002). Access to finance, technology and knowledge also differs dramatically between countries.

Furthermore, the concept of competitiveness has been radically redefined for the South African agribusiness sector. Agricultural policy and practice in South Africa has changed dramatically over the past decade (Kirsten & Vink, 1999). Several processes have reversed the impact of discriminatory legislation, while other initiatives have been implemented to deregulate and liberalise the sector.

Nearly five years after the publication of the Kassier Report (Kassier, 1992), the new Marketing of Agricultural Products Act, No 47 of 1996 spells out a set of rules that differs quite significantly from earlier legislation. The agribusiness sector in South Africa was dramatically affected by these changes in marketing legislation which promoted a free market approach. Free trade agreements also reduced the import protection for the agribusiness sector dramatically.

The South African agribusiness sector, however, has to compete within this environment. Competing under these conditions can be harsh, but given a global regulatory environment that entrenches the notions of international competition (on both regional and global level), South African agribusiness have simply no choice but to compete.

"In today's business, the competition will bite you if you keep running; if you stand still they will swallow you" – William Knutsen, Jr. (Chairman, Ford Motor Company)

In this Chapter the elements of the competitive business environment that impact directly and indirectly on the competitive performance of the South African agribusiness sector will be defined and discussed. The problem statement, hypotheses and research objectives of the study will follow.

1.2 DEFINING THE COMPETITIVE ENVIRONMENT FOR AGRIBUSINESSES IN SOUTH AFRICA

1.2.1 The new economy

Globalisation, technology and in particular, rapidly changing trends in consumer behaviour impact heavily on the way agribusinesses conduct their business. The changes are also very dynamic, changing the nature of both farming and business. One may experience, for instance, that farmers spend less time on the land and more time on service activities such as market information gathering and analysis, contract management, marketing, finance and asset acquisition. This is the "new" economy in which agribusiness in South Africa operates. The most important changes are shown in Table 1.1.

Table 1.1: The changing business environment

The transition from an industrial/ producer driven business to an information community. For thousands of years the major source of economic power was rooted in the ability to accumulate land to extract agricultural and mineral commodities from that land. Then, 250 years go, the Industrial Revolution changed civilization in virtually all respects, and physical resources – factories, equipment and capital – became the new source of economic power. Today the major source of economic power is embodied in ideas, information, technology and knowledge (Roux, 2002).
The change from a national economy to a world economy: The opening up of trade and the reduction in import tariffs in terms of World Trade Organisation (WTO) agreements have exposed South African agribusinesses to competition. The Trade, Development and Co-operation Agreement (TDCA) between the European Union (EU) and South Africa (SA) as well as the establishment of a free trade zone in SADC will have a profound impact on the South African agribusiness sector (Poonyth, Esterhuizen, Ngqangweni & Kirsten, 2002).
The change from hierarchy towards a "network" economy: The emphasis is shifting from a pyramid structure to a horizontal one, where strategic alliances, co-operation, supply chain agreements and specialisation are facilitated. Networking empowers individuals and nurtures innovation and unity (Doyer, 2002).
The change from regulation and institutional help to self-help: The deregulation of the agricultural sector has resulted in a greater number of entrepreneurs, who add value, as well as more differentiation and a greater volume of exports. The scaling down of domestic support and export subsidies according to WTO regulations will generate an increase in business opportunities and trade between countries (Van Rooyen, Esterhuizen & Doyer, 2001).
The changes from a producer focus to a consumer focus: Because of a diverse population with individual preferences, consumers have become discerning, and open economies have increased the number of alternatives and variables. The conventional producer focus has therefore changed to a consumer-driven focus (consumer individualism) (Doyer, 2002).
The changes from a product focus to an experience focus: The satisfaction of a product is no longer only in the quality of the physical product but also in the experience in buying the product, for example the quality of a restaurant is no longer only in the food it serves, but also in the whole experience in eating there (Van Rooyen, 2005).

Source: Based on Standard Bank, 1999

1.2.2 Consumer demands

Consumer demands are probably the most important driver for change in the agricultural and food supply chain. These consumer demands are illustrated in Figure 1.1. Food quality and assurance is increasingly important to the modern health conscious consumer (Doyer, 2002). Recent food scares in Europe and the terrorist attacks in the United States of America have contributed heavily to the newfound consumer attention to the quality and safety of food.

Consumers are also becoming increasingly more health aware. Organic and natural foods are a US$30 billion industry today and are projected to reach US$100 billion in 2010 (Datamonitor, 2004). Consumers also want to know more about their food, for example, the nutritional facts and where did it come from. The percentage increase of women in the workplace is one important factor driving the trend towards convenience food. Thus, the consumers require more attention and added economic and experiential value to their food and beverage preferences i.e. pre-prepared meals, quality control, situational experience, etc.

In addition to these preferences, consumers are becoming increasingly aware of societal and ethical values such as pollution, exhaustion of natural resources, hazardous waste, child labour, corruption, usage of animals for research, usage of Genetically Modified Organisms (GMO), etc. The consumer demands more ethical and societal values in the production and value adding processes of their food.

The challenge for agribusinesses is to respond to these changing consumer preferences. The annual reports of most international companies are extending their coverage of traditional profit, loss and business trends to include 'corporate social responsibility'. However, maximising shareholder value and spending resources on public ecological and ethical concerns contradicts each other. Agribusinesses are challenged to balance these issues in their supply chain processes (Doyer, 2002).

An example is Nestlé which is on the brink of completing its transformation from a "global diversified food company" to a "respected and trustworthy international food-nutrition health and wellness company". Nestlé also has the world's largest private nutrition research capability and is the only company in the world with a nutritious product for every meal or snack occasion (Nestlé, 2005).
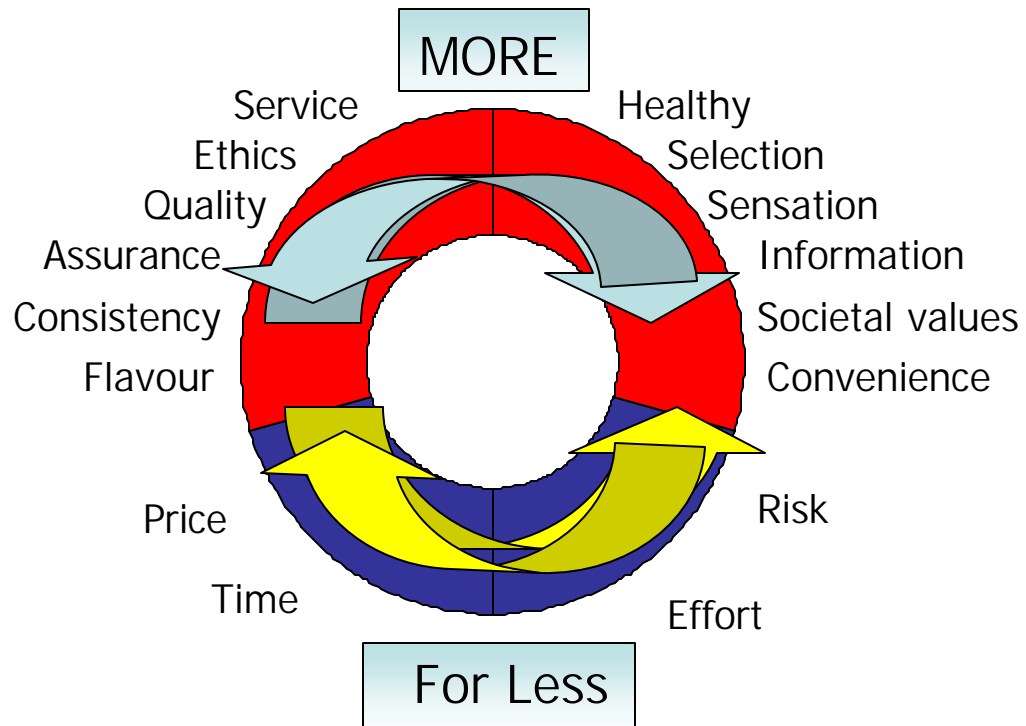
Figure 1.1: Consumer demands
Source: Based on Doyer, 2004

1.2.3 Opening up world trade

Although economic globalisation is not a new concept, some relatively new factors have contributed to its recent prominence. The opening up of global markets and the recent advances in communication and transport technology, amongst others, have resulted in a major expansion of international trade and investment.

±8% p/a

± 35% p/a
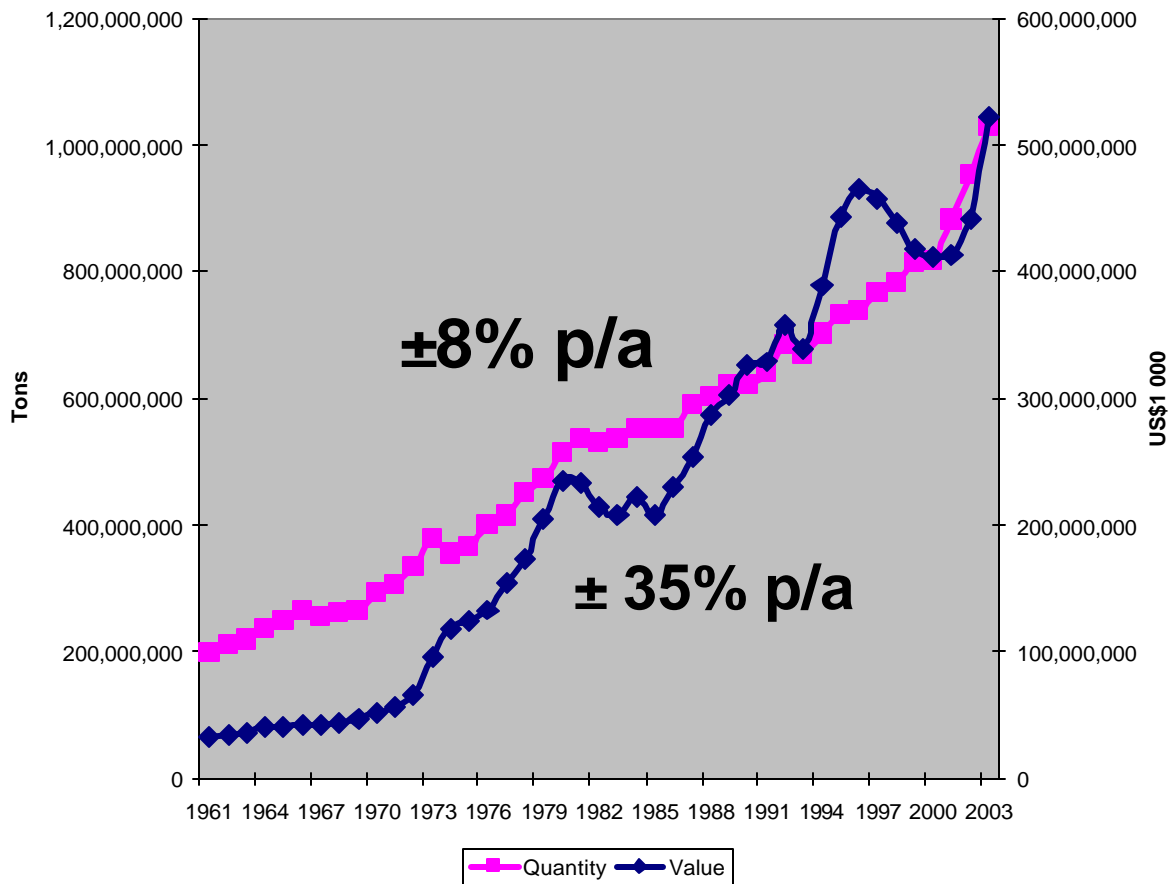
Figure 1.2: Value and quantity of world agricultural trade

Source: Own calculations based on data from FAOSTAT 2004

Figure 1.2 illustrates the value and quantity of world agricultural trade. From 1960 to 2003 world trade in agricultural products grew in quantity by approximately 8% a year; whilst the value of world trade in agricultural products increased by approximately 35% a year. The world is indeed shrinking and at the same time becoming borderless. Interdependencies and interrelatedness between nations are on the increase, whilst trade and capital flow between countries and organisations are increasing in importance.

1.2.4 Competitiveness positions

Figure 1.3 shows the top ten countries in 2004 by competitiveness as published in the Global Competitiveness Report and calculated by the World Economic Forum (WEF) (World Economic Forum, 2004). For the third time during the last four years Finland tops the rankings. The country is extremely well managed at the macroeconomic level, and it excels in the measures designed to assess the quality of its public institutions. Moreover, Finland has very low levels of corruption and its firms operate in a legal environment in which there is widespread respect for contracts and the rule of law. Finland's private sector shows a proclivity for adopting new technologies, and it nurtures a culture of innovation. An especially noteworthy fact is that, for several years, Finland has been running budget surpluses in anticipation of future claims on the budget associated with the aging of its population (WEF, 2004).

The United States ranks second, with overall technological supremacy and especially high scores for indicators such as companies' spending on R&D, the creativity of its scientific community, personal computer and internet penetration rates. However, these are partly offset by a weaker performance in those areas which capture the quality of the macroeconomic environment and its public institutions.

Compared to the results of 2003, nine out of ten of the top performers remain in this category. Amongst these leaders, the largest improvement has been registered by Norway, having moved up from ninth to sixth place since 2003. Norway improved in all three areas of the Index, most particularly with regard to its public institutions, driven by a much better score in the area of contracts and law. Indeed, the Nordic countries all occupy privileged positions in the Global Competitiveness Report's rankings (WEF, 2004). South Africa ranks only 41st in the world in terms of its ability to compete globally.
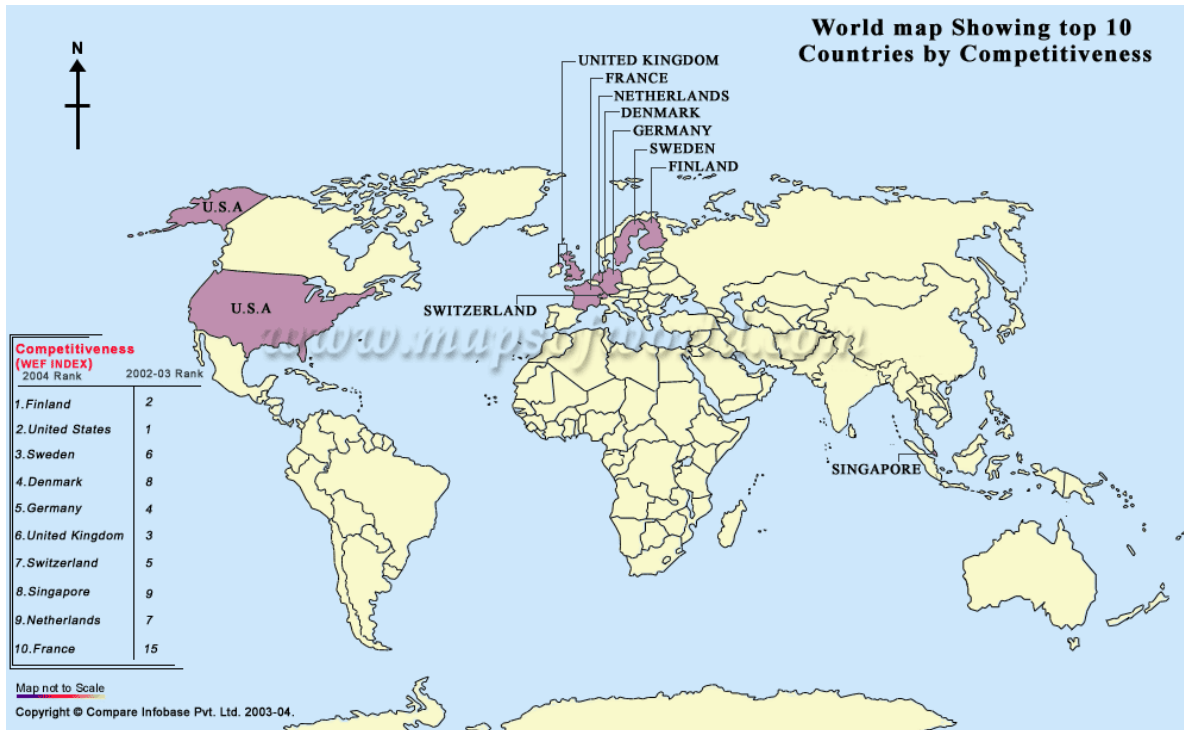
Figure 1.3: World map showing top 10 countries by competitiveness

Source: Compare Infobase Pvt. Ltd. (2004)

1.2.5 Government support, subsidisation and unequal economic "playing fields"

The global market environment has proved to be quite "unequal" from an economic point of view. Countries compete in this market with different degrees of direct and indirect government subsidies and protection. The sophisticated measures to protect/promote the agricultural economies of the USA, Canada and UK are well known and well documented (Organisation for Economic Co-operation and Development, 2002). The Organisation for Economic Co-operation and Development (OECD) countries are spending more today in subsidising agriculture than they were in either the 1986-88 period or in 1994 – the year in which the Uruguay Round Agreement came into effect. Government support to farmers across the 30 countries of the OECD was US$257 billion in 2003, accounting for 32% of farming income. This represents a rise from the 31% recorded in 2002 (National Agricultural Marketing Council, 2005)

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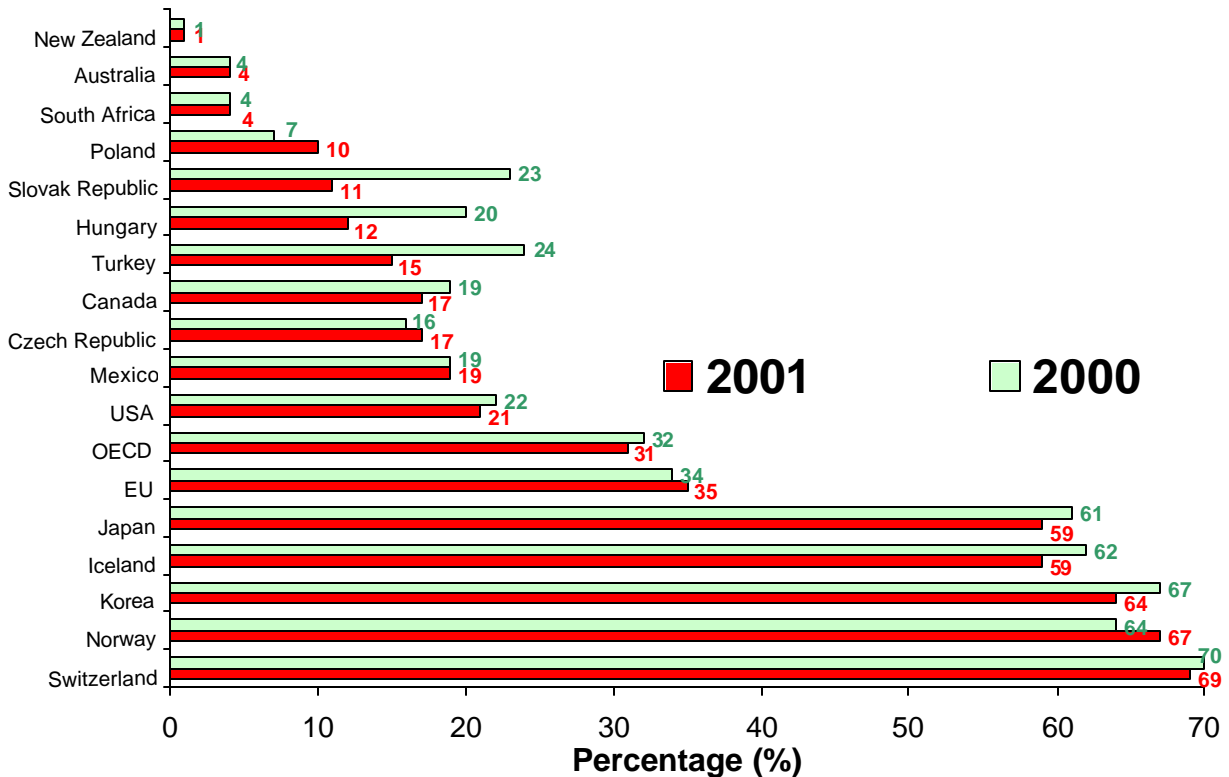
Figure 1.4: Producer subsidy equivalent by country, 2000 and 2001
Source: OECD, 2002

Figure 1.4 illustrates the producer subsidy equivalent for different countries. The producer subsidy equivalent indicates the annual direct and indirect monetary transfers to farmers. In South Africa, for every US$1 received by farmers only 4 cents are directly or indirectly contributed to by the government. In Canada, the USA and EU the government subsidised respectively 17, 21 and 35 cents for every US$1 received by the farmers. This situation must simply be considered economically distorted and unfair, as the scale of advantages is clearly tipped towards the stronger and richer countries of the world that are in a position to provide such support to their economies. South Africa and other economies such as Australia and New Zealand are, however, not operating such government support schemes and their producers will have to learn to "cope with the slope". According to the National Agricultural Marketing Council (NAMC) (2005), it may take between 10 to 20 years before significant changes towards a more even

situation will be made to the agricultural systems of the EU, Japan and North America, taking into consideration the rate at which cuts in funding are being made.

Table 1.2 indicates the most distorted markets as a result of the OECD countries expenditures to producers. Rice, sugar and milk producers are the most subsidised producers in the OECD countries. For every US$1 received by rice producers in OECD countries, 78 cents are directly or indirectly subsidised by the government. As for sugar, milk, and sheep producers, the OECD countries subsidise respectively 51, 48 and 38 cents for every US$1 received.

Table 1.2: OECD producer support estimates by commodity, 2001 - 2003

Commodity	US$ million	Producer support estimate (%)
Rice	22 254	78
Sugar	6 127	51
Milk	43 393	48
Other grains	8 209	41
Sheep meat	3 842	38
Wheat	15 173	37
Beef and veal	27 513	33
Other commodities	76 800	26
Maize	9 694	24
Oilseeds	6 680	24
Pig meat	10 624	21
Poultry	6 514	17
Eggs	1 377	8
Wool	113	5
All commodities	238 310	31

Source: National Agricultural Marketing Council, 2005

1.2.6 Decreasing trends in the producer's share of the consumer price

An interesting feature of the new economy is that the producer's share in the consumer dollar for food is substantially decreasing world-wide (Figure 1.5). There are many reasons for this higher marketing margin, for example increased cost of transport,

increased cost of capital, advertising, packaging, meal preparation, etc.   This trend is expected to continue, *inter alia* due to the importance consumers attach to aspects such as health, environmental, ethnical and social considerations within value adding processes and the traceability thereof along the value adding chain.   The implication of this trend is that the value adding chain will in future become a major business system in the agribusiness sector.

Producers' share in the consumer price
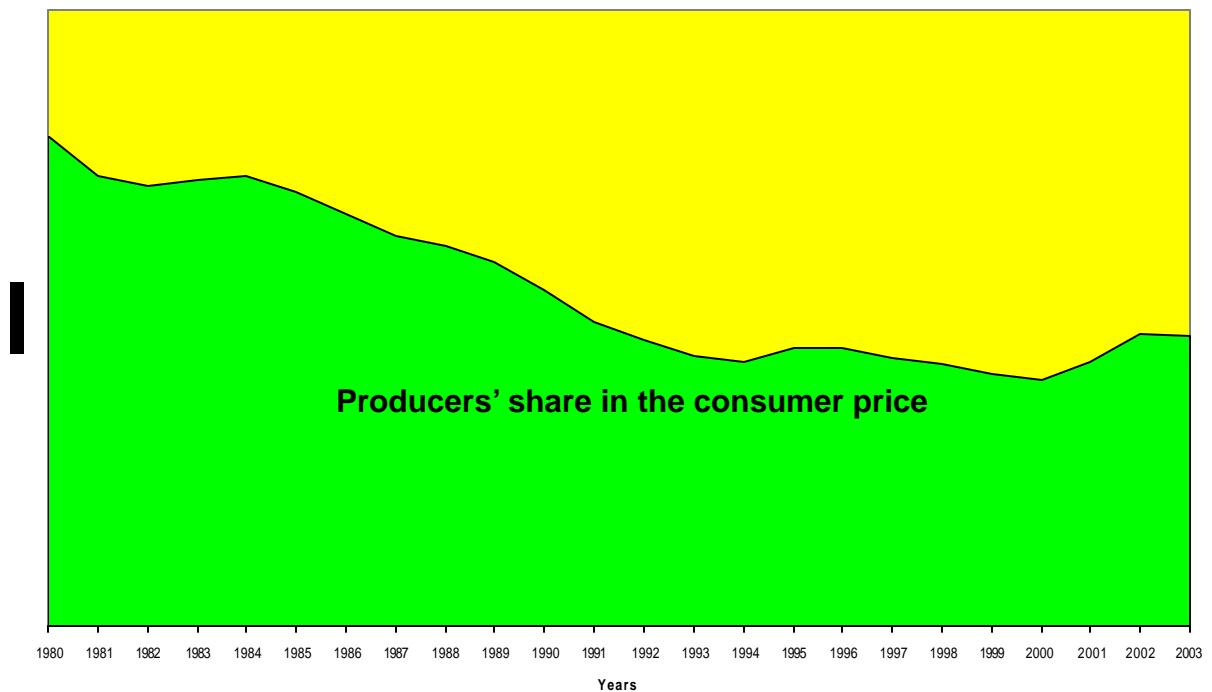
Figure 1.5: Decreasing trend of the producers' share in the consumer price worldwide

Source: Own calculations based on data from FAOSTAT 2004

1.2.7 Changing agribusiness concepts and systems

Given the changing economic environment, Boehlje (1996) identified business concepts that are important for the survival of agribusiness. Some of these concepts, relevant for South African agribusinesses, are shown in Table 1.3.

Table 1.3: Elements of changing business concepts

Old concept	New concept
? Cultivate commodities	? Specific characteristics/differentiated primary products
? Hard assets are the key to strategic competitiveness	? Soft assets are the key to strategic competitiveness
? Geographically centralised production area	? Geographically decentralised production area
? Capital/finance/assets are the primary sources of power and control	? Information is the primary source of power and control
? Impersonal markets	? Personal markets with negotiation
? Antagonistic relationship with input suppliers & buyers	? Partnership with input suppliers and buyers
? Volume production can lead to a price advantage	? Unique characteristics of products guarantee markets
? Technical skills critical for success	? People/communication skills critical for success
? Agricultural is about farming	? Agricultural is about the production of food/fibre and experiences and the distribution thereof
? USA and EU is the world's primary supplier	? Many suppliers world-wide
? Stable structures	? Transformation, flexibility

Source: Based on Boehlje, 1996; Standard Bank, 1999

Today, many agribusinesses are, however, still operating within the "old concept" where business is based on a strong production focus and highly impersonal transactions. Even though these businesses are still resistant to change, they will become increasingly under pressure to adopt the "new concepts" of more consumer and supply-chain-orientated

ways of doing business. Transformation and flexibility as opposed to structured and systematic change could thus be added as a feature of the new agribusiness concepts.

1.2.8 Towards competing supply chains

In an international survey done by Professor Zuurbier from the Wageningen University, Netherlands (Zuurbier, 1999) and adapted by Doyer and Van Rooyen (2002) for South Africa, it is indicated that vertical integrated supply chains, networks and trust relationships are expected to determine the structure of the food and agribusiness industry in the next decade (Table 1.4). Technology, consumer behaviour and multinational companies are considered to be the most important driving forces (Table 1.5).

Table 1.4: The structure of the agro-food industry in the next decade

Item	Percentage agreed (%)				
	Netherlands	Europe	World	Total	RSA
Larger scope of companies	73	75	70	73	48
Vertical integrated supply chains	85	91	90	88	70
Spot markets	23	19	20	21	37
Networks of companies	92	88	95	91	52
Virtual networks of companies	58	72	70	67	38
More fragmented markets	77	56	60	64	57
Increase in small companies	15	44	45	35	43
Increase in global companies	73	84	80	79	52
Electronic markets	81	78	80	79	83
Less trust/more opportunism	27	28	20	26	26

Source: Zuurbier (1999); Doyer & Van Rooyen (2002)

Table 1.5: Major factors driving the agro-food industry

	Percentage agreed (%)				
Item	Netherlands	Europe	World	Total	RSA
Multinational food companies	74	76	74	74	56
Supply chains	60	64	74	66	46
Regions	52	50	54	52	42
Local supply networks	58	66	64	62	54
Technology	78	80	82	80	60
Collusion/merger	76	66	70	70	46
Consumer behaviour	80	76	88	80	66
Increased competencies	68	74	72	72	42

Source: Zuurbier (1999); Doyer & Van Rooyen (2002)

The formal management of supply chain systems is thus viewed as one of the most important phenomena in the food and agricultural business for the future. The fundamental concept of a value chain is, however, not complex – it is the value-creating activities in the production-distribution process and the explicit structure of the linkages among these activities or processes (Boehlje, 1999). Added value will be lost if the chain is not functioning in an effective and efficient manner. In order for this to happen, information flows, trust, joint planning and problem solving within a value adding system is necessary (Doyer, 2002).

The importance of consumer demand, including traceability regarding environmental exploitation, health security and social and ethical aspects of production, at different stages of the chain, is expected to explode in world markets (Doyer, 2002). Unless such demands are transmitted rapidly and accurately to primary producers, agriculture will find it difficult to focus on market needs in order for it to compete effectively. In addition to that if only certain elements in the supply chain are performed efficiently, the full potential for value adding will not be realised.

Various models of "supply chain" interaction are possible, depending on the specific conditions in an industry. Figure 1.6 illustrates this range. Possibilities for collaboration will depend on the industry. Grain and livestock transactions are generally still

dominated by spot markets (also electronic markets) and contracts. Flowers, vegetables, wine and fruit are generally operating in more formal chain relationships. An increased share in value adding, however, will clearly require a movement away from spot market arrangements towards formal co-operation and integration arrangements (Zuurbier, 1999).

	Spot Market	Contracts	Strategic Alliances	Formal Cooperation	Vertical Integration	
Characteristics of "Invisible hand" coordination Self interest Short-term relationship Opportunism Limited information sharing Flexibility Independence						**Characteristics of "Managed" coordination** Mutual interest Long-term relationship Shared benefits Open information sharing Stability Interdependence
	External control via price and generic standards	External control via specifications and legal appeal	Mutual control	Internal control via decentralized decision structure	Internal control via centralized decision structure	

Figure 1.6: Various models of supply chain interaction

Source: Peterson & Wysocki (1997)

Note: The diagonal line represents the mix of invisible-hand and managed coordination characteristics found in each of the five alternative strategies for vertical coordination. The area above the diagonal indicates the relative level of invisible-hand characteristics and the area below the diagonal indicates the relative level of managed characteristics.

1.2.9 New types of business leaders and management competencies

New situations demand new kinds of management systems and leaders. The global world of the twenty-first century requires new, world-class leaders: leaders with a unique combination of attributes and personal characteristics. Leadership styles and skills that may have worked in stable, predictable environments will be inadequate in an era of radical uncertainty, at a time when organisations "can't even define the problem, much less engineer a solution" (Marquardt and Berger, 2000).

Given the changing environment, Marquardt and Berger (2000) identify new attributes and competencies for the twenty-first century leader (see Table 1.6)

Table 1.6: Leadership competencies necessitated by workplace transformation

World of work transformation	New global leadership attributes
Globalisation	Global mindset and competencies
Knowledge era	Teacher, coach, mentor and model learner
Changing workers	Servant and steward
Organisational restructuring and chaos	Systems thinker and polychronic co-ordination
Biotechnology, environment	Spirituality and concern for ethics
Technology	Technologist
Customer expectations	Innovator and risk-taker
Future speed of change	Visionary and vision-builder

Source: Adapted from Marquardt and Berger (2000)

Litzenberg and Schneider developed a survey instrument entitled "AGRIMASS", (Agribusiness Management Aptitude and Skills Survey) in 1983 (Litzenberg and Schneider, 1987). The AGRIMASS Survey is an attempt to identify the particular needs of agribusiness managers in the new competitive environment. Since the successful implementation of the survey in America (1986), Australia (1988) and Canada (1987), Doyer and Van Rooyen (2002) have done a similar survey for agribusinesses in South Africa.

This survey identified 74 characteristics of future agribusiness managers in six major categories: business and economics (20 questions); computer, quantitative, and management information (10); technical skills (9); communication skills (9); interpersonal skills (15); and employment and general experience (11).

The results from the different countries were more similar than dissimilar. This can be ascribed to the reality of a global environment as well as the relatively common cultural base and quantity of academic, business and cultural exchange between the countries. Agribusiness managers in all the countries consider **personal qualities** such as self-confidence, positive attitude, loyalty, high moral values, self-motivation etc. as the most important attribute ahead of **communication skills** and **business and economic skills**. South African and Australian managers ranked **computer and quantitative skills** higher than **technical skills**, as opposed to the US and Canadian rankings. The general category of previous **work experience** was rated the lowest in all the countries. The rankings of the different categories are represented in Table 1.7.

Table 1.7: Rankings of the skills categories

Category	USA	Canada	Australia	RSA
Business and economic skills	3	3	3	3
Computer, quantitative, and management information skills	5	5	4	4
Technical skills	4	4	5	5
Communication skills	2	2	2	2
Personal qualities	1	1	1	1
Employment, work, and general experience	6	6	6	6

Source: Doyer & Van Rooyen, 2002

The confidence of a manager, as a personal quality, plays a cardinal role in the competitive performance of a business (Jones & Hardy, 1990). Confidence is characterised by a high expectancy of success. It assists individuals in arousing positive emotions, facilitate concentration, set goals, increase effort, focus on strategies and maintain momentum. Lack of confidence is accompanied by over-anxiety resulting in

poor performance. At high anxiety levels reactions are slow and anticipation poor. Behaviour becomes inflexible and there is a failure to notice and respond effectively to the successful strategies of the opposition. Weaknesses are not perceived nor are they exploited. The person is hesitant, indecisive and becomes trapped in his own negative, internally focused thoughts concerning the social consequences of failure in terms of loss of status and prestige (Vealey, 2001).

1.2.10 Integrity, ethics and the natural environment

Integrity can be defined in two ways (Oxford, 2002). Firstly, there is the literal meaning, "the state of being whole or entire". This definition is appropriate within the context of concepts such as "food chain". This chain can no longer merely be seen as a complex flow of food from primary agriculture to the consumer. Today, each and every part of this flow must be considered a link, and the integrity of each link constitutes the integrity for the entire chain.

Secondly, integrity is defined as "uncompromising adherence to moral and ethical principles". It is no longer sufficient to merely ensure that the food chain is safe and efficient. Today, the consumer is increasingly more aware and concerned with the provenance of their food.

All interpretations of integrity can be distilled down to the word 'trust'. Retail brands have historically gained this trust by providing consistently safe and healthy foods and by being responsive to changing ideas and views on diet, nutrition and safety. Today, this is no longer adequate. The consumer is now better educated and more informed with complex concerns. Many of these concerns are sensitised by social interest groups raising awareness on issues such as environment, sustainability, ethics and ethical trade. This awareness, coupled with the increasing mistrust by consumers of regulatory bodies and experts, causes maintenance of this trust to become a very real issue.

The challenge for the agribusiness sector in South Africa will be to ensure that the sector is managed in a sustainable and environmentally-friendly manner, and to foster an open and trusting relationship with all elements of society to ensure that the sector is not obstructed nor controlled by confrontational special interest groups.

To meet these challenges, the agribusiness sector must be proactive and visibly progressive in addressing these issues of integrity, ethical and environmentally-friendly production. The sector should proceed towards meeting society's expectations regarding these issues. The sector must also be held accountable through assessment and monitoring of resources and activities.

The agribusiness sector, now more than ever, needs total integrity in the supply chain to provide full provenance for their products.

1.2.11 Agricultural commodities are getting cheaper

Despite the fact that the world's population has grown at an unprecedented rate over the last 200 years, the world's appetite for agricultural commodities is falling in relation to its appetite for manufactured goods and especially in relation to services (Roux, 2002). This is the source of much of Africa's economic unhappiness: the economies of many countries in central and southern Africa have been built on their production and export of commodities, but in general the world is producing a surplus of most of these commodities. This means that the prices of commodities on world markets have, on average, been falling for a number of years (Roux, 2002).

Figure 1.7 illustrates the Economist Commodity Price Index in real terms. From Figure 1.7 it is clear that the real commodity price index is about 80% lower in 2000 than in 1845, and that it has fallen by 85% since its highest point in 1920. In fact, the index has lost two-thirds of its value since 1970 alone. Clearly, countries, sectors and industries that depend heavily on primary commodities have suffered badly over the last few decades as their main source of income has been shrinking at an alarming rate.
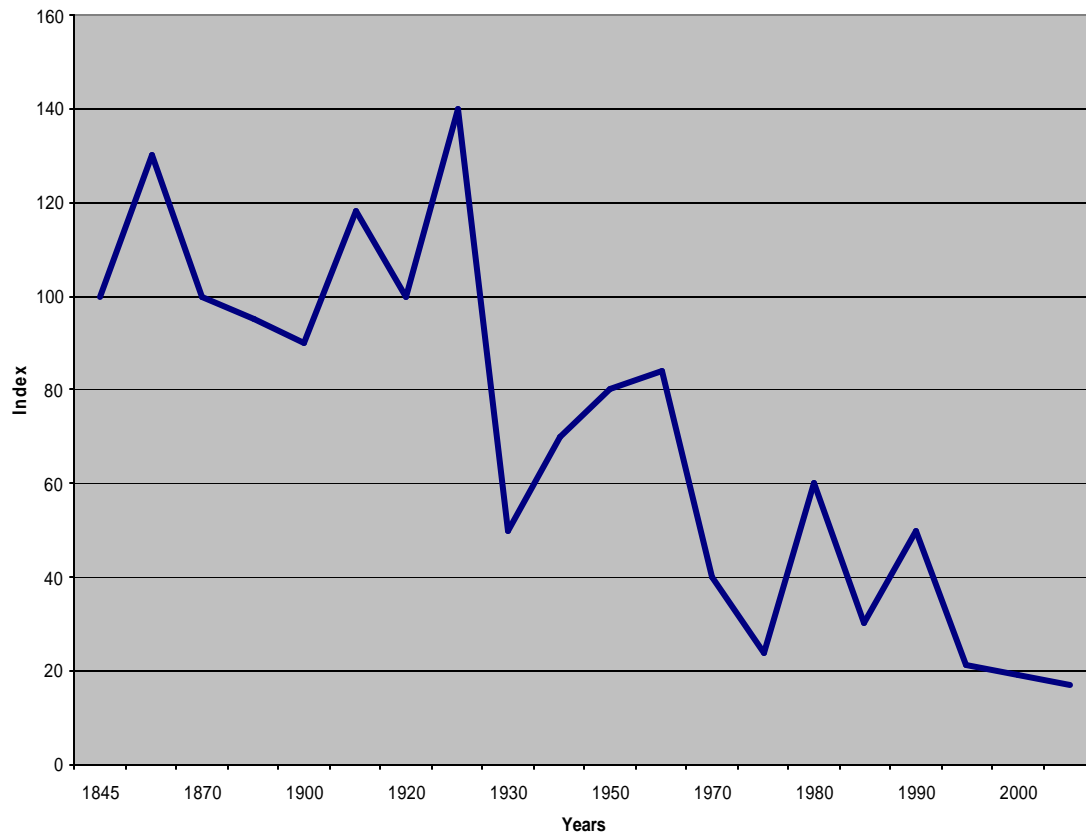
Figure 1.7: The Economist Industrial Commodity Price Index in real US$ terms (1845 = 100)

Source: The Economist, 2002

1.2.12 The need for socio-economic transformation, growth and economic development

Socio-economic transformation, growth and economic development are major forces that influence the strategic environment in which farmers and agribusinesses operate. South Africa is emerging from a historically dualistic agricultural economy, induced by policy settings and historical resource endowments, comprising a well-developed commercial sector and a subsistence orientated sector in the rural areas (Van Rooyen, Groenewald, Ngoangweni & Fenyes, 1998). This historical dualism impacts dramatically on the current development, policy and strategies in South Africa (Kirsten & Vink, 1999).

Socio-political forces which *inter alia* emphasise land reform and the integration of "historically disadvantaged groups" into the main stream of decision-making, accumulation, governance and economic participation are impacting directly on the competitive environment of agribusinesses in South Africa (Van Rooyen, Greyling & Esterhuizen, 1999).

A major challenge in South Africa is to change the historical dualism with its legacy of exclusion and discrimination along racial and gender lines, and to redress the agribusiness sector – which is characterised by skewed levels of ownership, managerial and technical skills and a lack of access to economic opportunities.

In 2001 a Strategic Plan for South African Agriculture was launched with the vision of a *"united and prosperous agricultural sector"* (National Department of Agriculture, 2001). This vision implies sustained profitable participation in the South African agricultural economy by all stakeholders, recognising the need to maintain and increase commercial production, to build international competitiveness and to address the historical legacies and biases that resulted in skewed access and representation.

A strategic goal in support of this vision for agriculture was also developed, namely: "To generate equitable access and participation in a globally competitive, profitable and sustainable agricultural sector contributing to a better life for all" (National Department of Agriculture, 2001).

In January 2004, the president of South Africa, Mr. Thabo Mbeki, signed the Broad-Based Black Economic Empowerment (BEE) Act. The objectives of the Act are to promote economic transformation; change the racial composition of ownership and management of enterprises; increase ownership and management by communities, workers and cooperatives; promote investment in enterprises owned and managed by black people; and to empower communities. Being "broad-based", the Act aims to broaden the entrepreneurial base, extend black participation in the economy, develop

local communities and employees, and to reduce income inequalities and poverty (Department of Trade and Industry, 2004).

Two ideological frameworks underpin broad-based BEE. The first is redistribution to redress the injustices of the past. The second is economic development. Development requires a balance between capacity-expanding, income-concentrating activities and demand-expanding, income redistribution or -dispersing activities (Doyer, 2004).

The "BEE framework" is the mechanism by which the objectives of the Broad-Based Black Economic Empowerment Act will be achieved. This framework consists of four elements: ownership and equity; skills transfer; indirect empowerment; and corporate social responsibility.

A broad-based black economic empowerment framework for agriculture (AgriBEE) in South Africa was launched in July 2004 (National Department of Agriculture, 2004). The AgriBEE framework is in line with existing government policy and legislation for redressing centuries of past racial discrimination and the consequences thereof. The AgriBEE framework established the guiding principles for broad based black economic empowerment in the agriculture sector.

Given the above, the agribusiness sector in South Africa will need to have an economic development and empowerment strategy. In the South African context the core focus of this strategy needs to be economic empowerment in general, to support black economic development and to enable historically disadvantaged groups in the agribusiness sector to create economic ownership, to upgrade the skills base, to gain access to assets and to sustainably exploit and participate in business opportunities along the full value chain in the sector.

1.2.13 Conclusion

It is clear that globally and locally, the agribusiness sector in South Africa is experiencing far-reaching and complex changes. These changes include technology, markets, consumer preferences, business systems, environmental, equity and social transformation to name a few. An appropriate slogan for the South African agribusiness sector could well be "adapt or perish", despite the presence of highly "unequal economic playing fields". The changes now require that the agribusiness sector in South Africa positions itself as business driven competitors in a less controlled, "free market", global trading environment.

The South African agribusiness sector also has to align itself proactively to the challenge of business systems innovation, socio-economic transformation, deracialisation and economic empowerment. These factors will influence prosperity in the South African agribusiness sector.

1.3 DEFINING THE AGRIBUSINESS SECTOR

"Agribusinesses play a significant role in the economy of South Africa as handlers, processors and marketers of agricultural products, and as suppliers of production inputs and services. In addition, agribusinesses are major employers, developers and sources of added value."

- Agricultural Business Chamber (2000)

The term "agribusiness" was coined by two economists, John Davis and Ray Goldberg, at the Harvard Business School in 1957 (Pacific Agribusiness Alliance, 1999). The agricultural industry had been changing drastically since the early 1900's, when almost all agricultural activity took place on the farm. Davis and Goldberg (1957) used the term agribusiness to convey "all the business that supports the delivery of food, clothing and shoes, tobacco, flowers and agricultural exports to their final consumers". Davis and Goldberg (1957) believed the term agribusiness was most suited to describe the whole of

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all the enterprises that now take place beyond the farm gate, bringing products from the field to the consumer.

Malcolm and Davidson (1999) visualised the agribusiness sector as a vertical "slice" of an economy comprising of many parts. The agribusiness "slice" is where consumers and producers of goods and services related to agriculture operate. "Agribusiness" activity is distinguished from "business" activity in general by its proximity to and the strength of agricultural connections to the business activities. The closer and stronger an activity can be tied to the "agricultural action", the more confidently the activity can be described as being involved in agribusiness, and the further removed from the "agricultural action", the more confidently the activity can be termed to be simply "business". More specifically, agribusiness management and marketing activities can be considered to be of a different nature to business management and marketing in general, because of the nature of agriculture. The nature of agriculture – the biology, the seasonality, the nature of the products, the nature of the markets and particularly the risks involved – characterises and distinguishes agribusiness activity from "normal business" (Malcolm and Davidson, 1999).

Zuurbier (1999) defines the agribusiness sector as a chain of industries directly and indirectly involved in the production, transformation and provision of food, fibre, chemicals and pharmaceutical substrates. Soler and Tangury (1998) identify links in the agribusiness chain, which includes the following industry sectors:

? Primary production of commodities - such as unprocessed food, aquaculture, fibre, chemical and pharmaceutical substrates.
? Tertiary transformation of the commodities into value added products – where the value is derived from the process of transformation.
? Supply of inputs to the primary and tertiary sectors.
? Retail and wholesale provision of commodity and value added food, fibre and related products to consumers.
? The provision of services such as finance, insurance and technical advice.

Subsequently, agribusiness research evolved along two parallel levels of analysis, namely: the study of co-ordination between vertical and horizontal participants within the food chain - known as agribusiness economics - and the study of decision-making within the alternative food chain governance structures - known as agribusiness management (Cook & Chaddad, 2000).

In this study, without limiting its scope, businesses that have direct interaction with primary agriculture as well as value adding enterprises further down the agricultural value chain - with their core business being in the areas describe below - will be defined as agribusinesses (see also Figure 1.8):

?   Intermediaries that supply basic agricultural inputs directly to agricultural producers, like fuel, fertiliser, chemicals, seed, mechanisation and all other general farm requisites, as well as crop and other financing and insurance.

?   The manufactures of basic agricultural inputs and its supply, either directly or via intermediaries, to farmers.

?   Intermediaries providing market access to primary agricultural produce, either by handling or preparation for market readiness or by further processing.

?   Marketing agencies and traders of primary agricultural produce or commodities.

?   Processors of primary agricultural produce into food, food snacks, animal feed, etc.

?   Transporters and distributors of basic agricultural inputs and primary agricultural produce that have direct interaction with primary agriculture.

Agribusinesses involved in these activities will be described as the "agribusiness sector" and provide a most reliable and measurable "barometer" of the situation in the agro-food and fibre complex.

Input supply

Market access

Manufacturing
Procurement
Intermediaries
Distributors
Marketing

•Fertilizer
•Fuel
•Seed
•Chemicals
•Machinery
•Finance
•Insurance etc.

Value adding

Handling
Storage
Preparation
Processing
Distribution
Marketing
Trading
Transportation

Primary agriculture
(farm level production)
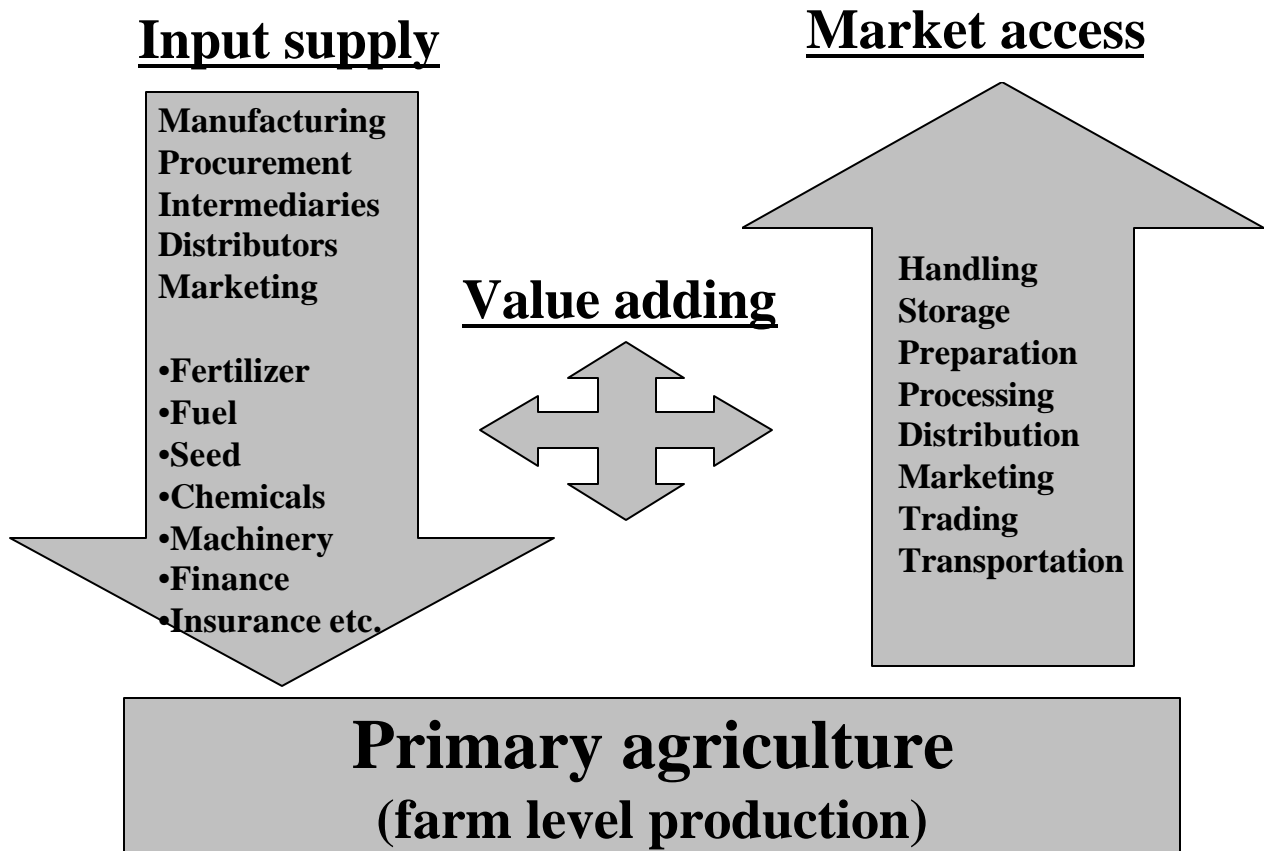
Figure 1.8: Functions of the agribusiness sector

Source: Agricultural Business Chamber, 2004

1.4 THE SOUTH AFRICAN AGRIBUSINESS SECTOR: ECONOMIC STATUS AND CONTRIBUTION

Although not often realised, the agribusiness sector makes a major contribution to the South African economy. Primary agriculture contributes about 4% to the gross domestic product (GDP) of South Africa and almost 9% of formal employment. The agribusiness sector (inputs, processing, marketing) contributes approximately R124 billion to the South Africa's GDP. The sector also has upstream or backward linkages on the supply side and downstream or forward linkages on the manufacturing side.

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The sector creates approximately 1.6 jobs outside agriculture for every job in agriculture (Van Rooyen and Esterhuizen, 2000). It provides 12.5% of the country's jobs or about 20% of total recorded employment in manufacturing (National Productivity Institute, 2002) and creates employment for another 16% of the workforce in other sectors. A direct investment in the agribusiness sector creates twice as many jobs as an investment in the other manufacturing sectors (Van Rooyen & Esterhuizen, 2000).

A notable fact is that nine of the top ten employment generators in the economy as a whole are found in the agro-industrial sector. These are: tobacco products, oils and fats, basic chemicals, meat products, animal feeds, other foods, dairy products, grain milling, sugar products, paper products and canning (Van Rooyen & Carstens, 1996).

Value-added activities in the sector include the slaughtering, processing and preserving of meat, processing and preserving of fruit and vegetables, the processing of vegetable and animal oils and fats, dairy products, grain mill products, prepared animal feeds, bakery products, sugar refining, cocoa, chocolate and sugar confectionery amongst other food products.

In 2001, the value of sales of food and food products was R67 543 million; this was 13.45% of total sales of all manufacturing products in South Africa (Statistics South Africa, 2002). Total assets of the agribusiness sector in 1996 amounted to R18 billion; this amounts to 18% of the total assets in the manufacturing sector (Statistics South Africa, 1998).

In 2002, the agribusiness sector in South Africa's exports resulted in foreign exchange to the amount of R25 460 million (National Department of Agriculture, 2004). Citrus and deciduous fruit, highly in demand in foreign countries, accounted for one of the largest exports. South Africa also exports groundnuts, maize, wine, cut flowers, bulbs, mohair, karakul pelts, sugar, meat and wool, to name just a few.

South African produce has achieved remarkable successes on foreign markets and is well-known for its uncompromising quality. The agribusiness sector has seen a dramatic increase in foreign sales over the past years. This trend is expected to pick up further into the future with the implementation of more free trade agreements. The high quality and diversity of South African produce, mostly harvested during the Northern Hemisphere winter, ideally positions South Africa to exploit world demand in many products e.g., fresh fruits.

The agribusiness sector must be recognised as one of the major sectors that contribute towards economic growth, especially when taken into consideration that ±13 million people reside in and are dependent on economic activity in rural areas (Van Rooyen, Groenewald, Ngqangweni & Fenyes, 1998).

In a study of the economy of the Western Cape, it was found that primary agricultural production and related agribusiness activities in general rated much higher than the other economic activities, with regards to aspects such as employment creation, added value, foreign exchange earning and also in the redistribution of income to the 40% poorest population groups in the province (Eckert, Liebenberg & Troskie, 1997). The total development impact through the relevant multipliers of the 48 economic sectors investigated in the province also favoured agricultural and agribusiness activities. Agriculture and agro-processing (especially food, beverages, clothing, leather and leather products) tend to lead to a more equitable distribution of per capita income, also boosting trade and transportation. Moreover, these sectors all tend to create more low-skilled jobs. Agro-food industries outperformed non-agricultural related industries significantly within an economic development context.

In view of the above, the agribusiness sector's real contribution is far more substantial and crucial to sustained wealth creation, poverty alleviation, and welfare generation in South Africa than given credit for. The role of the agribusiness sector should therefore be seen in a wider context, by considering, for example, its linkages with the broader economy; the critical role it plays in regional development and food security; its

contribution towards human development, job creation, poverty alleviation, and the environment; its role as a driver of industrial development; as well as its ability to generate and redistribute income and improve the quality of life of all South Africans.

1.5 SOUTH AFRICAN STUDIES ON AGRIBUSINESS COMPETITIVENESS

Given the trends in the global food and agribusiness sector, it is not surprising that agribusiness competitiveness has become a topic of much interest in both the popular press and in academic literature. Despite the emphasis placed on evaluating the competitiveness of the agribusiness sector in South Africa, the term "competitiveness" has not been clearly defined, nor has a consensus been reached as to the proper measure of competitiveness.

In recent years, agricultural economists in South Africa have begun to conduct more focused research into competitiveness in the agricultural and agribusiness sectors (Ortmann, 2001). Various agricultural economics departments at South African universities have also introduced programmes in agribusiness. For example, the University of Natal launched an Agribusiness option in 1999. In the same year the Department of Agricultural Economics, Extension and Rural Development at the University of Pretoria introduced a Chair in Agribusiness Management in collaboration with the Agricultural Business Chamber (ABC). The ABC represents all the leading agribusinesses in the country. This chair is currently sponsored by the agribusiness division of ABSA, a major South African commercial bank, with substantial agribusiness interests.

New directions in competitiveness studies in the South African agricultural and agribusiness sectors include, in recent years, analyses and research done by Esterhuizen and Van Rooyen (1999), from the latter institutional arrangement, who calculated and analysed the competitiveness of 16 selected food commodity chains in South Africa. Although they found that most commodity chains are competitive, the competitiveness index generally decreases when moving from primary to processed products. They

concluded that, while farm level production is relatively competitive, value-adding opportunities in South African agribusiness are constrained.

In a similar study of the South African flower industry, Van Rooyen and Van Rooyen (1998) concluded that the cut foliage industry had a high competitive advantage in international trade. Cut flowers and house plants showed a competitive disadvantage, which they attribute to factors such as the industry's focus on the local market, which demands a much lower quality product than European markets.

Van Rooyen and Esterhuizen (2001) investigated the opportunities and potential for agribusiness partnerships and co-operation in Southern Africa; it was concluded that such partnerships along supply chain integration would improve the global competitiveness of local agribusinesses in the region substantially.

Vink, Kleynhans and Street (1998) reported the results of an international comparison of the cost of producing wheat in eight Western Cape, three Free State and seven foreign producing areas. Results show that South Africa competes against two types of countries: high cost, high yield countries such as France, Britain and Germany and low cost, low yield countries such as Australia and Argentina. As a low yield, high cost country, South Africa cannot compete in the global wheat market. They concluded that, if the wheat industry in the Western Cape intends to survive international competition, it will have to improve its international competitiveness.

Van Schalkwyk, Van Zyl and Jooste (1995) determined the effect of the exchange rate and other international factors on the competitive position of South African wheat producers. It was concluded that, in the medium to longer term, it is in the consumer's interest to protect local producers against imports, since locally produced wheat will probably be competitive with imported wheat in the long run in view of the expected trends in world prices and exchange rates.

Blignaut (1999) analysed the local and international competitiveness of the South African dairy industry supply chain using an integrated approach suggested by Porter (1985). The two types of competitive advantages analysed include cost leadership (low cost production) and value adding (product differentiation). Blignaut concluded that South Africa's dairy farmers produce milk relatively effectively but that the milk processing industry is not internationally competitive. Esterhuizen and Van Rooyen's (1999) analysis supports Blignaut's (1999) findings regarding the relative competitiveness of the primary sector and the relative uncompetitiveness of the value adding industries.

Venter (1999) studied the competitiveness of Southern Africa's sheep meat supply chain relative to the Australian industry. Venter (1999) concluded that Southern African lamb producers were competitive but mutton producers were not. Venter (1999) found that the cost associated with value adding in the retail industry is much higher in Southern Africa than in Australia, resulting in a decrease in the competitiveness of the total value chain.

Recently, Esterhuizen and Van Rooyen (2005) completed a study on the competitiveness of the wine industry in South Africa. The study concluded that the wine industry can be classified as one of the winning industries in South Africa. Wine produced in South Africa is highly competitive internationally with an increasing positive trend over the past four years. The wine industry in South Africa also shows positive trends in competitiveness in the long run and it doesn't seem as if it will lose its competitiveness status in the near future.

1.6 PROBLEM STATEMENT AND RESEARCH QUESTIONS

1.6.1 Intelligence and competitiveness

It is too easy to underestimate the link between intelligence and competitiveness. As the economy moves away from a reliance on natural resources, prosperity becomes dependent on knowledge- based enterprises and other creative initiatives. In order to compete in these industries, South Africa must outsmart its rivals. Whether this involves

creating more creative products or inventing more innovative processes, one key to greater competitiveness is *knowing more*.

May (1996) reminds us that business activity, and therefore management activity, is entirely based on expectations. Management is about the uncertain future. By implication, therefore, most, if not all, business activity is concerned with the future. Indeed, the terms 'far-sighted', 'forward thinking', 'good foresight' and 'intelligence' have long been attached to successful managers. Although these thoughts relate to the commercial sector, they hold equally true for political leaders. It could be argued that they are equally applicable to ordinary human beings going about their daily lives. After all, we are constantly managing our own lives as well as those of our nearest and dearest. If we have intelligence (foresight), we are better equipped to manage a better life (Roux, 2002).

In Table 1.8 the hierarchy of intelligence is shown. Note that the consecutive layers of knowledge become more sophisticated as each layer is put into the right and appropriate context.

Table 1.8: A classification of intelligence

Level of knowledge	Meaning
Data	Untransformed or unprocessed 'bits'; the raw material of knowledge
Information	Transformed/processed 'bits' into messages that can change behaviour
Knowledge	Contextualized information; the ability to put information in a functional context
Intelligence	Contextualized knowledge; the ability to put knowledge in a purposeful context, to have insight and understanding
Wisdom	Contextualized insight and understanding; the ability to put your life, your organization, your community, your nation within the context of the whole, and understanding the meaning of life

Source: Based on Spies, 1995

So, if intelligence (foresight) is so important and desirable, how is it acquired? First of all, it comes with appropriate experience, which is enhanced in the second instance by

regular open and informed discussions between like-minded and concerned individuals, who are willing and able to introduce different opinions and perspectives into the discussion.   Thirdly, it is only by measuring, analysing and understanding that sound judgment regarding the possible outcomes of current events can be made.

The third aspect is important for this study - measuring, analysing and understanding – in order to create intelligence to increase the ability of the agribusiness sector in South Africa to compete in the global environment.

1.6.2 The questions to be answered

Many questions are being asked about the competitiveness of the South African agribusiness sector. For example: "What is competitiveness?"; "How competitive are the sector?"; and, "How can it be measured practically?".   The competitiveness of the agribusiness sector in South Africa furthermore depends on a number of technological, socio-political, economic, etc. factors. One of the most pervasive influences is that of the external environment, and in particular, the set of policies which operate in the market for agricultural goods. These factors have also a direct influence on the business confidence of agribusinesses in South Africa. Appropriate adjustments could therefore contribute to changing negative situations into positive status.   It will, however, be important to identify the particular set of factors which needs to be adjusted.

The main question to be answered by this study is: "Can the South African agribusiness sector successfully compete on a sustainable basis within the global environment?". The result or outcome of being in a position to successfully compete will clearly be manifested in a number of propositions. These will include acceptable levels of profits and returns on resources invested in the South African agribusiness activities and the concomitant ability of such economic activities to consistently attract resources from other (non-agribusiness) economic activities to sustain the sector.

Five secondary questions are locked into this main question. The first question to be answered is: "How is competitiveness defined and measured?" The second question to be answered is: "How competitive is the South African agribusiness sector globally?" The third question that needs to be examined is: "What are the key success factors and what are the main constraints impacting on the competitiveness of the South African agribusinesses sector?" The fourth question to be considered is: "How favourable is the decision-making environment in which South African agribusinesses operates?" Knowing the state of competitiveness and the factors impacting on competitiveness the last question can be answered: "How can the competitiveness of the South African agribusiness sector be enhanced?" (i.e. the strategic approach to achieve and sustain competitiveness).

These questions are well motivated by Michael Porter (1998): "A firm must understand what (it is about its home nation that) is most crucial in determining its ability or inability to create and sustain competitive advantage in international terms".

In a static view of competition, a nation's factors of production are fixed. Firms deploy them in the industries where they will produce the greatest return. The essential character of today's competition is dynamic and requires innovation and change. Instead of merely being limited to passively shifting resources to where the returns were greatest, the real issue is rather how can firms increase the returns achieved through new products and processes. Instead of simply maximizing within fixed constraints, the question is how firms can gain competitive advantage from changing the dynamic environment of constraints. Instead of merely deploying a fixed or static pool of factors of production, a more important issue is how can firms and countries create the environment to improve the quality of factors, raise the productivity with which they are utilized, and create new ones (Porter, 1998).

In order to meet the challenges imposed by this situation, economic analysis has an important contribution i.e. to pinpoint inefficiencies and weaknesses in the business systems, whilst emphasizing elements that could provide a sustainable competitive

advantage to the agribusiness sector in South Africa with regard to both the challenge of global competition, the satisfaction of customer demand and the incorporation of socio-economic and equity considerations - and thus developing new competitiveness strategies to respond to these dynamic challenges.

1.6.3 Problem statement and study focus

A number of problem situations exist in answering the above questions. The term "competitiveness" has not yet been clearly defined, and nor has a comprehensive framework for determining and analysing the agribusiness sector's competitiveness been established in South Africa. Also, no attempt has been made to measure the changing decision-making environment in which agribusinesses must operate. Ad hoc and relatively reductive analysis has been conducted to date (see previous references to South African studies on competitiveness).

In this study the focus will be on these issues: a description of the theoretical foundation of competitiveness and the development of a clear definition and measurement methodology of competitiveness; the development of a framework for measuring, explaining and analysing competitiveness; the development of a framework to determine and analyse the status of the decision-making environment; and to apply this framework on the agribusiness sector in South Africa.

This study also aims to provide a contribution to structural strategic analysis and development in the agribusiness sector of the South African economy.

1.7 HYPOTHESES

In order to focus the analysis the following hypotheses for this study are formulated:

i) There is an increasing trend in the competitiveness of the agribusinesses sector in South Africa after the deregulation of the sector in the early nineties.

ii) Both micro and macro factors are impacting on the competitiveness status of the agribusiness sector in South Africa. These factors are either enhancing or constraining the competitiveness status of the sector. These factors also have a direct impact on the sustainability of the competitiveness status of the agribusiness sector in South Africa.

iii) A clear relationship exists between changes in the decision-making environment of the agribusiness sector in South Africa and the competitiveness performance of the sector. Changes in the decision-making environment of the agribusiness sector in South Africa have a direct influence on the status of business confidence in the sector. The business confidence of agribusinesses, on the other hand, has a direct influence on the competitive performance of the sector.

iv) The business confidence of the agribusiness sector in South Africa is influenced by a complex set of activities and expectations. The particular risks and nature of agriculture distinguishes agribusiness activities and expectations from other businesses. There is a direct correlation between the changes in the business confidence of agribusinesses and changes in macro economic influences suh as agricultural conditions, interest rates, the exchange rate and economic growth. Furthermore, micro economic expectations like an increase or decrease in turnover, an increase or decrease in nett operating income, employment trends and capital investments also influence the confidence of the agribusiness sector in South Africa. The performance of the political system also has an influence on business confidence.

1.8 RESEARCH OBJECTIVES

1.8.1 General objectives

The challenge to the South African agribusiness sector is to achieve and maintain competitiveness in order to survive in the competitive environment of the new global economy. The sector must achieve this while addressing societal issues such as social

and economic equity, environmental responsibilities and ethical business practises (Doyer, 2002).

The general objective of this study is to analyse the competitiveness of the agribusiness sector in South Africa. Through the analyses the following questions will be answered and conclusions will be reached:

    (i)   *"How is competitiveness defined and measured?"*

    (ii)   *"How competitive is the South African agribusiness sectors globally?"*

    (iii)   *"What are the key success factors and the constraints impacting on the competitiveness of the South African agribusiness sector?"*

    (iv)   *"How favourable is the decision-making environment in which South African agribusinesses operates?"*

    (v)   *"What strategies are needed to enhance the competitiveness of the South African agribusiness sector?"*

By answering these questions it will be possible to explain the role played by the economic environment, institutions and policies in the competitive success of the agribusiness sector in South Africa. Amongst others, such an analysis will highlight the ability of each activity in a particular value chain (production, marketing, processing etc.) to adapt to market changes and structures, to produce and adopt technological innovations, its particular access to capital and its capacity to obtain and retain market share within the international market. In short, these variables will measure and evaluate the efficiency, effectiveness, and sustainability of the agribusiness sector in South Africa.

The competitiveness analysis can also be seen as an instrument capable of not only evaluating the existing state of international competitiveness of the South African

agribusiness sector, but also of outlining hypotheses, scenarios and strategic choices for the future. The analysis can therefore form the basis for round table discussions, for policy and strategic positioning and for planning by participants in the chain to promote value adding and to address weaknesses.

1.8.2 Specific objectives

The specific objectives of the study are:

i) To describe the theoretical foundations of competitiveness and develop a definition of competitiveness as applicable to the agribusiness sector in South Africa.

ii) To develop a framework for measuring and analysing the competitiveness of the agribusiness sector in South Africa.

iii) To measure the competitiveness status and long and short term trends in competitiveness of selected industries in the South Africa agribusiness sector.

iv) To determine the major constraints and enhancements to the competitive success of the agribusiness sector in South Africa.

v) To analyse the decision-making environment of the agribusiness sector in South Africa and to determine the major micro and macro factors impacting on the decision-making environment of the sector.

vi) To develop strategies from the above results in order to enhance the competitiveness of the agribusiness sector in South Africa.

1.9 OUTLINE OF CHAPTERS

The outline of this study will be as follows: **Chapter one** describes the competitive environment for agribusinesses, defines the problem statement and develops hypotheses and specific objectives in order to focus the study. **Chapter two** describes the theoretical foundations of competitiveness and defines competitiveness. In **Chapter three** a framework for analysing the competitiveness of the agribusiness sector in South Africa is developed.

In **Chapter four** the competitiveness status and long and short term trends in the competitiveness of the agribusiness sector in South Africa is determined. The competitiveness of selected commodity and product chains is also determined. Chapter four serves as a basis for the exploration of a number of opportunities and relationships for South African agribusinesses which is discussed in **Chapter five**.

In **Chapter six,** the major constraining and enhancing institutional factors that influence the competitive success of the agribusiness sector in South Africa is discussed. In **Chapter seven** trends in the determinants of competitiveness in the South African agribusiness sector are analysed.

The changes in the decision-making environment, as it impacts on the business confidence of the agribusiness sector in South Africa are discussed in **Chapter eight.** The major factors influencing the business confidence of agribusinesses are also identified.

Strategies to enhance the competitiveness of the agribusiness sector in South Africa are developed and discussed in **Chapter nine**. Finally, **Chapter ten** consists of a summary of major findings and concluding remarks.

CHAPTER TWO

LITERATURE SURVEY AND THEORETICAL FRAMEWORK

2.1 INTRODUCTION

The neo-classical trade theorists such as Heckscher (1919), Ohlin (1933), Stolper (1941) and Sameulson (1941) have long influenced us to define competition in terms of comparative advantage, a notion that lends itself especially well to agriculture, with the relatively simplistic division of factor endowments among land, capital, natural and human resources. Recent developments in competitiveness theory have, however, revealed certain limitations to this static concept of comparative advantage.

The new competitiveness theory has also revealed certain limitations in viewing indicators such as the wealth and power of nations, share in world markets or economic performance as the only measures of competitiveness. For example, competitiveness is not necessarily an indicator for economic performance. Economic performance focuses on added value over the short-term, commonly expressed as Gross Domestic Product (GDP) growth. However, the GDP indicator has some shortcomings as it does not take into account the depletion of non-renewable capital, such as natural resources, the volatility of the economy, the sustainability of growth or the impact of non-tangibles, such as education and research (International Institute for Management Development (IMD), 2003).

Competitiveness theory has been revised in order to keep up with an evolving world, consisting of a dramatically different community from what it used to be 20 or even 10 years ago. The manner in which businesses combine their resources, the distribution channels through which they choose to distribute their products to the consumer, and the use of strategic alliances with government, customers or even suppliers, all contribute now to making the world environment intensely more competitive and complex. The

new competitiveness theory therefore has to make us think in terms of dynamic and expanded factors affecting competitiveness.

The globalisation of finance, industry, consumer markets, information and communication infrastructures and services has accentuated the transformation of competition from a means and a particular mode of economic functioning to an ideology and an aggressive goal for survival and hegemony (The Group of Lisbon, 1995). Competing in the global economy has become the everyday slogan of multinational corporations' advertisers, business school managers, economists and political leaders.

Through localisation and transplants of production facilities and fierce competition – or alternatively, via strong alliances to enable more successful competition at the world level – the global networks of multinational corporations are reshaping the sectoral and territorial configuration of the world economy. The new global economy looks like a battle among economic giants, where no rest or compassion is allowed to the contenders.

All this clearly shows that competitiveness could be viewed as a complex notion. This theme will be examined in this Chapter. The aim of this Chapter is to describe explicitly the evolution of competitiveness thought to the current perspectives on the concept of competitiveness. This will contribute to a more common and widespread understanding of the diverse and dynamic factors that affect the competitiveness of firms, sectors and nations.

Firstly, the evolution of competitiveness theory is described. This is followed by an illustration of the different perspectives on the concept of competitiveness to be found in literature. A definition for competitiveness is then developed that will be used throughout this study. Lastly, the relationship between competitive performance and confidence is described.

2.2 COMPETITIVENESS THEORY FROM ADAM SMITH TO MICHAEL PORTER

Competitiveness as a field of economic knowledge is relatively new in itself, and has only been researched and taught since the beginning of the 1980's. However, it is built on numerous economic concepts, which can be traced all the way back to the Classical Economists - the founding fathers of modern economic theory such as Adam Smith, David Ricardo, etc.

Traditionally, a nation's international competitiveness has been explained by international trade theories originating from Adam Smith (1776). However, today's global economy is too complicated to be explained by the traditional trade theories. Recently, Michael Porter (1990, 1998) of the Harvard Business School introduced a new competitiveness theory, the so-called diamond model. Michael Porter (1990, 1998) differentiated his theory from the traditional trade theories by arguing that national prosperity is not inherited, but created by choices; in other words, national wealth is not set by factor endowments, but created by strategic choices. Porter (1990, 1998) showed different choices of creating wealth, which has been quite limited in the world of traditional trade theories. His diamond model has lately been extended by several scholars.

The evolution of competitiveness theory from Adam Smith to Michael Porter is illustrated in Figure 2.1 and summarised in Table 2.1. Some of the essential elements of the historical development of economic thought in the area of competitiveness will now be discussed.

TRADE THEORY
Wealth is set by endowments
Adam Smith
(1776)

David Ricardo
Comparative advantage
(1817)

Heckscher-Ohlin
Factor proportions theory
(1877 - 1949)

Leontief
The Leontief Paradox
(1953)

Staffan Linder
Overlapping demand
(1961)

Raymond Vernon
Product Cycle Theory
(1966)

Krugman, Lancaster
Economies of scale
(1979)

COMPETITIVENESS THEORY
Wealth is created by choices
Michael Porter
(1990)

Figure 2.1: The evolution of competitiveness theory

Table 2.1: The evolution of competitiveness theory

Theories	Key concept(s)
Mercantilism Approximately 1500 – 1800	The object was to make the state strong; the economic basis for strength, wealth, was given great weight. The most important form of wealth was considered to be precious metals; foreign trade was generally preferred above other forms of industry to furnish a supply of the desired form of wealth.
Classical Trade Theories Adam Smith (1776) David Ricardo (1817) J.S. Mill (1848) J.S. Mill (1873)	 Absolute advantage Comparative advantage International values Politics of protection
Neoclassical Models: Heckscher-Ohlin (1919, 1933) Stolper-Samuelson (1941) P.Samuelson (1948) T.M. Rybczynski (1955) Salter (1959) Swan (1960)	 Factor endowment Stolper-Sameulson theorem - highlights the relationship between output prices and factor prices within a single country Factor price equalization theorem – the relationship between relative prices in two countries Rybczynski theorem – the relationship between the supply of a factor and the output of the commodity that uses that factor Exchange rates
Challenges to Comparative Advantage: Leontief (1953) S. Linder (1961) R. Vernon (1966) Krugman (1979) Lancaster (1979)	 Leontief Paradox Overlapping demand The product cycle Economies of scale
Competitiveness theories: Michael Porter (1990, 1998) Rugman & D' Cruz (1993) Cho (1994) Moon, Rugman & Verbeke (1995)	 Determinants of competitive advantage (diamond-model) Double diamond model The nine-factor model Generalized double diamond model

Source: Based on Masters (1995) and Cho & Moon (2002)

2.2.1 The Mercantilist School

As described in the evolution of the competitiveness environment, the period before A.D. 1500 represents an epoch far different than the period from 1500 A.D. to the present. There was little trade before 1500 A.D., and most goods were produced for consumption in the community that produced them without first being sent to the market. In contrast, markets and trade expanded rapidly after 1500 A.D. In 1492 Columbus reached the New World; in 1501 Amerigo Vespucci discovered the mainland of the continent; and in 1519 Magellan reached the Philippines around the southern tip of South America and opened the Western route to India (Brue, 2000). The money economy superseded the natural or self-sufficient economy with an increase in competition. National states with unified economies became dominant forces. Economic schools arose, representing systematic bodies of thought and policy formation.

The economic theory of Mercantilism (1500 – 1776) appeared between the middle ages and the period of the triumph of *laissez-faire* (a policy of leaving things to take their own course without interfering). The self-sufficiency of the feudal community slowly gave way to the new system of merchant capitalism. Cities, which had been growing gradually during the Middle Ages, became increasingly important. Trade flourished both within each country and between countries, and the use of money expanded. National states were rising, and the most powerful of them were acquiring colonies as well as a sphere of influence. Economic rivalries between nations were intensified. It is not surprising then that a body of doctrine evolved that superseded feudal concepts, promoted nationalism, gave new dignity and importance to the merchant, and justified a policy of economic and military expansion.

Some of the main principles of the Mercantilist School were (Brue, 2000):

? **Gold and silver as the most desirable form of wealth**. Mercantilists tended to equate the wealth of a nation with the amount of gold and silver that it possessed. The policy of accumulating precious metal was called "bullionism".

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? **Nationalism.** All countries could not simultaneously export more than they imported. Therefore one's own country should promote exports and accumulate wealth at the expense of its neighbours. This policy soon shifted toward regulating international trade to achieve a favourable balance of trade. Only a powerful nation could capture and hold colonies, dominate trade routes, win wars against rivals, and compete successfully in international trade.

? **Duty-free importation of raw materials that could not be produced domestically.** Protection for manufactured goods and raw materials that could be produced domestically, and export restriction on raw materials. The interest of the merchant took precedence over those of the domestic consumer. Merchants received inflows of gold in return for their exports, while the restrictions on imports reduced the availability of goods for consumption at home. Consequently gold and silver accumulated, supposedly enhancing the country's wealth and power.

? **Strong central government.** A strong central government was needed to promote Mercantilist goals. The government granted monopoly privileges to companies engaged in foreign trade. It restricted free entry into business at home to limit competition. Agriculture, mining and industry were promoted with subsidies from the government and protected from imports via tariffs.

The Mercantilists made a lasting contribution to economics by emphasising the importance of international trade. In that context, they also developed the economic and accounting notion of what today is termed the "balance of payments" between a nation and the remainder of the world. Beyond these contributions, the Mercantilists contributed little to economic theory, as we know it today.

2.2.2 The Classical School

The Classical School began in 1776, when Adam Smith published his "Wealth of Nations". It ended in 1871 when W. Stanley Jevons, Charl Menger and Leon Walras independently published works expounding neoclassical theories (Brue, 2000).

The Classical doctrine is frequently called economic liberalism. Its bases are personal liberty, private property, individual initiative, private enterprise and minimal government interference.

Classical economics rationalised the practices being engaged in by enterprising people. It justified the overthrow of mercantilist restrictions, which had outlived their usefulness. Competition was a growing phenomenon, and reliance upon it as the great regulator of the economy was a tenable viewpoint.

Several of the classical "laws" are today taught as "principles" of economics:

- ? The law of diminishing returns.
- ? The law of comparative advantage.
- ? The notion of consumer sovereignty.
- ? The importance of capital accumulation to economic growth.
- ? The market as a mechanism for reconciling the interests of individuals with those of society.

Much of contemporary international trade theory is rooted in the writings of classical economists, notably Adam Smith (1723-1790), David Ricardo (1772-1823), and John Stuart Mill (1806-1873). The central conclusion of these authors' work is that, although there are exceptions, almost all countries can reach their highest possible levels of income and economic growth by maintaining open international trade. Domestic production and consumption should thus be guided by the prices at which foreigners are willing to trade. Rather than restricting trade, governments should focus on maintaining competitive

national markets and investing in public goods such as research and education (Master, 1995).

2.2.2.1 Adam Smith

The major problem with mercantilism was that it viewed trade as a zero-sum game in which a trade surplus of one country is offset by a trade deficit of another country. In contrast, Adam Smith viewed trade as a positive-sum game in which all trading partners can benefit. Smith's 900-page economic treatise "An inquiry into the nature and causes of the wealth of Nations" appeared in 1776, the year of the American Revolution. This was the book that established him as one of the premier economic thinkers in the history of economic thought.

The first chapter of Wealth of Nations is titled "Of the Division of labour" - an unfamiliar phrase in Smith's time. Production, the creation of a product for exchange, always requires the use of society's primary element of value, namely human labour. Smith noted that some countries, owing to the skills of their workers or the quality of their natural resources, could produce the same products as others with fewer labour-hours. He termed this efficiency absolute advantage. The division of labour (assigning stages of production to several individuals rather than each producing an entire good or service), said Smith (1776), increases the quantity of output produced. The mercantilists were concerned mainly with how the exchange of goods, once produced, could add to the nation's well-being. By beginning his book with a discussion of how the same number of workers could produce substantially more output by dividing their labour, Smith immediately made it clear that "Wealth of Nations" was a break away from the prominent economic notions in existence at that time.

Smith (1776) pointed out that participants in the economy tend to pursue their own personal interests. The person of business pursues profit: *"it is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest"*. The consumer looks to find the lowest price for a good, given its

quality. The worker tries to find the highest pay, given the non-wage aspects of the job. However, hidden within the apparent chaos of economic activity is a natural order. There is an invisible hand that channels self-interested behaviour in such a way that the social good emerges.

The key to understanding Smith's invisible hand is the concept of competition. The action of each producer or merchant attempting to garner profit is restrained by the other producer or merchants who are likewise attempting to make money. Competition drives down the prices of goods and in so doing reduces the profit received by each seller. In situations in which there is initially only a single seller, extraordinary profit attracts new competitors who increase supply and erase the excessive profit.

In an analogous way, employers compete with one another for the best workers, workers compete with each other for the best jobs, and consumers compete with one another for the right to consume products. Stated in contemporary economics terms, the result is that resources get allocated to their highest valued uses; economic efficiency prevails.

Furthermore, because businesspersons save and invest – again out of their self-interest - capital accumulates and the economy grows. The pursuit of self-interest, restrained by competition, thus tends to produce Smith's social good – maximum output and economic growth. This harmony of interests implies that intrusion by government into the economy is unneeded and undesirable. According to Smith (1776), governments are wasteful, corrupt, and inefficient and the grantors of monopoly privileges to the detriment of the society as a whole.

Adam Smith (1776) extended his division of labour in the production process to a division of labour and specialised products across countries. Each country would specialise in products for which it was uniquely suited. More would be produced for less. Thus, if each country specialised in products for which it possessed absolute advantage, all countries could produce more in total and then exchange products for goods that were cheaper in price than those produced at home, and in the process maximise the nation's

income and therefore the per capita income. In practice, however, Smith saw various barriers set by governments that restricted the free flow of international trade. In a direct attack on mercantilism, Smith argued that government should not interfere in international trade. Nations, like individuals and private families, should specialise in producing goods for which they have an advantage and trade for goods that other nations have an advantage for. His famous passage reads as follows:

"It is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy. The tailor does not attempt to make his own shoes, but buys them of the shoemaker. The shoemaker does not attempt to make his own clothes, but employs a tailor. The farmer attempts to make neither the one nor the other, but employs those different artificers..."

"What is prudence in the conduct of every private family can scarce be folly in that of a great kingdom. If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them with some part of the produce of our own industry, employed in a way in which we have some advantage..."

"The natural advantages which one country has over another in producing particular commodities are sometimes so great, that it is acknowledged by all the world to be in vain to struggle with them. By means of glasses, hotbeds, and hotwalls, very good grapes can be raised in Scotland, and very good wine too can be made of them at about thirty times the expense for which at least equally good can be brought from foreign wines, merely to encourage the making of claret and burgundy in Scotland?" (Smith, 1776).

It has often been said that it was more than a coincidence that both the Declaration of Independence and The Wealth of Nations were given to the world in 1776 (Cho & Moon, 2002). One was a declaration of political freedom. The other was a declaration of commercial independence. The effect of the Wealth of Nations was revolutionary. Smith's thoughts on trade gave businessmen a significant place in history. Their pursuit of profit was justified. Their social respectability as an important class was identified. In

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the same year of 1776, individuals attained political freedom in the United States and economic freedom in England.

2.2.2.2 David Ricardo

Although Smith was the founder of the Classical School and set its dominant tone, David Ricardo (1772 – 1823) was the leading figure in the further development of the ideas of the school. Ricardo (1817) demonstrated the possibilities of using abstract methods of reasoning to formulate economic theories. Smith (1776) advocated foreign trade without impediments in order to widen markets and remove surpluses; trade was based on differences in absolute costs.

Ricardo (1817) made a brilliant and lasting contribution to economic thought by showing that even if a country is more efficient than another in producing all commodities, trade between the two nevertheless can be of mutual benefit. His theory of comparative costs is now known as the "law of comparative advantage". One important implication of this theory is that even if a country did not have an absolute advantage in any good, this country and other countries would still benefit from international trade.

To explain this, Ricardo used an illustration (Ricardo, 1817). In trade between England and Portugal, if Portugal could produce cloth with the labour of 90 men and wine with the labour of 80 men, and England could produce the same quantity of cloth with 100 men and the wine with 120, it would be advantageous for these nations to exchange English cloth for Portuguese wine. By concentrating upon what each nation could do with the least effort, each had a greater comparative advantage. Thus, each nation had more wine and more cloth than it could have had by producing each commodity independently without the benefit of exchange.

In this example Portugal can benefit from trading with the less efficient England because Portugal's cost advantage is relatively greater in wine than in cloth. Portugal's production cost of wine is only two-thirds the cost in England, but its cost of cloth is

nine-tenths the cost in England. Portugal thus has greater efficiency in wine than in cloth, while England has less inefficiency in cloth than in wine. Each nation should produce the product for which it has a relative advantage - that is the product for which it has the lowest domestic opportunity cost.

Ricardo (1817) explicitly assumed in his theoretical proof of the gains from trade that capital and labour did not flow between countries. He implicitly assumed that cost remained constant as output increased. Otherwise, specialisation would not be carried on to its fullest extent. All costs were measured in terms of labour hours, an approach consistent with the labour theory of value.

The Ricardian model of international trade is thus a very useful tool for explaining the reasons why trade may happen and how trade increases the welfare of the trading partners. However, this model is incomplete. In particular, there are two major problems (Cho & Moon, 2002). Firstly, the simple Ricardian model predicts an extreme degree of specialisation, but in practice countries produce not one but many products, including import-competing products. Secondly, it explains trade based on differences in productivity levels between countries, but it does not explain why these differences exist.

The first problem can be solved when diminishing returns to scale (i.e. a convex production possibility frontier) is assumed, implying that, as resources are shifted from one sector to another sector, the opportunity cost of each additional unit of another sector increases. Such increasing costs may arise because factors of production vary in quality and in suitability for producing different commodities. Under these circumstances, the theory can predict that a country will specialise up to the point where gains from specialisation become equal to increasing costs of specialisation (Cho & Moon, 2002). The theory can then explain the reason why a country does not specialise its production completely. The second problem is solved by the theory of factor endowment that will be discussed later in this chapter.

Ricardo made several lasting contributions to economic analysis. Of particular significance were his contributions to the use of abstract reasoning, his theory of comparative advantage, his employment of marginal analysis, his presentation of the law of diminishing returns in agriculture, and his widening of the scope of economic analysis to include the distribution of income (Brue, 2000).

2.2.2.3 John Stuart Mill

Johan Stuart Mill (1806 – 1873) was the last great economist of the Classical School, undoubtedly the greatest since Ricardo's death in 1823. Mill (1848) made some significant original contributions, and he systematised and popularised the whole body of economic thought of his predecessors. The classical school was already in decline during Mill's mature years, and he departed from some of the key concepts built into the classical structure by Smith and Ricardo. Even before his death, neoclassical economics had appeared on the scene, ultimately to replace its classical forbearers. Mill's great "Principles of Political Economy", first published in 1848 and reprinted in the United States as late as 1920, was the leading textbook in the field - at least until the publication of Alfred Marshall's "Principles of Economics" in 1890 (Brue, 2000).

Mill (1848) endorsed Ricardo's advocacy of free international trade based on the law of comparative costs. However, Mill added to this a law of international values, one of his important original contributions to economic analysis. Ricardo's international trade theory failed to show how the gains from trade are divided among trading countries. Mill (1848) showed that the actual barter terms of trade depend not only on domestic costs but also on the pattern of demand. More specifically, the terms of international exchange depend on the strength and elasticity of demand for each product in the foreign country.

Although the intricacies of Mill's theory are complex, the general notion is relatively straightforward. He began by pointing out that the value of an imported good is the value of the commodity exported to pay for it. The things that a nation has available to sell abroad constitute the means for purchasing goods from other nations. Thus, the supply of

commodities made available for exports could be thought of as the demand for imports. Mill (1848) referred to this idea as "reciprocal demand".

Mill (1848) also noted that some activities would be profitable only if the government intervened to protect them through a period of "learning-by-doing". He argued that trade restrictions against current comparative advantage *"will sometimes be the least inconvenient mode in which the nation can tax itself for the support of such an experiment"* (Mills 1848: 922). It is clear, however, that there are often more cost-effective forms of support for "learning-by-doing", such as state-subsidised research and education.

In an autobiography published at the end of his life, John Stuart Mills (1873) argued that policies to restrict trade "against" comparative advantage generate transfers to a few specific beneficiaries at the expense of all other market participants. Potential beneficiaries tend to use up resources to solicit protection, and only relatively wealthy groups tend to succeed. Consequently, removing protection often helps the poor.

2.2.2.4 Concluding points about the Classical School

The Classical School contributed much to the understanding of how production and trade operate in the world economy. Although, like all economic theories, it is often criticised for being unrealistic or out-of-date, the purpose of a theory is clearly to simplify reality so that the basic elements of the logic can be seen. Several of these simplifications have continued to provide insight in understanding global business:

? Division of labour – Adam Smith's explanation of how industrial societies can increase output using the same labour-hours as in preindustrial society is fundamental to our thinking even today. Smith extended this specialisation of the efforts of a worker to the specialisation of a nation.

? Comparative advantage – David Ricardo's extension of Smith's work for the first time explained how countries that had seemingly no obvious reason to trade, could individually specialise in whichever production they performed best at, and trade it for the product they did not produce.

? Gains from trade – The theory of comparative advantage argued that nations could improve the welfare of their populations through international trade. A nation could actually achieve consumption levels beyond what it could produce by itself. To this day, this is one of the fundamental principles underlying the arguments for all countries to strive to expand and "free" world trade.

2.2.3 Neoclassical models

Perhaps the greatest contribution by the Neoclassical models is the identification of the sources of comparative advantage and specialisation, or the reasons why one industry can profitably expand while others cannot. Although the Ricardian model powerfully demonstrates the gains from trade, neoclassical thinkers wanted to look for additional explanations of why opportunity costs differ. Without such explanations for the rise and fall of major industries, it could be argued that the theory of "learning-by-doing" (i.e. experience) is the only real source of comparative advantage. It therefore implies that only trade restrictions can "create" comparative advantage by providing a "kick-start" to industries. Neoclassical models counter this argument and quantify contributors to an industry's comparative advantage (Masters, 1995).

2.2.3.1 Heckscher-Ohlin model

Trade theory, like all economic theory, changed drastically during the first half of the twentieth century. The factor proportions theory developed by the Swedish economist Eli Hecksher (1919), and later expanded by his former graduate student Bertil Ohlin (1933) formed the major theory of international trade that is still widely accepted today. Whilst Smith and Ricardo emphasised a labour theory of value (the amount of labour

involved in manufacturing a product gives it its value), the factor proportions theory (or the Heckscher-Ohlin theory) is based on a more modern concept of production that raises capital to the same level of importance as labour.

According to the "Heckscher-Ohlin" (HO) model, there are two basic characteristics of countries and products. Countries differ from each other according to the factors of production they possess. Goods differ from each other according to the factors that are required in their production. The HO model states that a country will have comparative advantage in, and will therefore export, the good that's production is relatively intensive in the factor with which that country is relatively well endowed with. The logic follows that the more abundant the factor, the lower the cost. Therefore, differences in the factor endowments of various countries explain the differences in factor costs, which result in different comparative advantages. For example, a wealthy country with relatively more capital would tend to specialise in capital-intensive goods, importing more labour-intensive goods from poor countries.

For many years such "Hecksher-Ohlin" models were limited to two domestic resources (capital and labour) and two traded goods. The HO model assumes that technology is identical, but that production methods are different between countries. Different production methods indicate different combinations of capital and labour. That is, different countries may choose different production methods depending upon factor prices in those countries. Therefore, patterns of production and trade are explained by different factor endowments or factor prices.

The HO model has been expanded by three important theorems, which will be discussed later: the Stolper-Samuelson theorem, the factor price equalisation theorem and the Rybczynski theorem.

The HO model is referred to as the neoclassical theory of international trade because it builds upon and complements the classical theory of comparative advantage. The HO model contains several appealing elements. It is simple, logical, makes common sense,

and appears to be virtually self-evident. However, an empirical test produced a paradoxical result.

2.2.3.1.1 The Leontief Paradox

The famous empirical study of the HO model was conducted by Leontief (1953), who was awarded the Nobel Prize in 1973. Leontief expected that the United States, the most capital-abundant country in the world, should export capital-intensive goods and import labour-intensive goods, but found that the United States import-competing goods required 30% more capital per worker than its export goods. According to his calculations, the capital-labour ratio was about US$14 000 per worker per year in export goods and about US$18 100 per worker per year in import-competing goods. This finding proves the opposite of what the HO model predicted. It has become known as the Leontief Paradox.

Many economists, including Leontief, have attempted to explain this Paradox. Leontief tried to explain the Paradox by the difference in labour skills. Jaroslav Vanek (1968) allowed the effects of additional resources such as natural resources to be incorporated in the model e.g. "Hecksher-Ohlin-Vanek" model. These two and several other explanations that have been attempted failed, however, to satisfactorily reconcile the Leontief Paradox.

2.2.3.2 The Stolper-Samuelson theorem

This theorem is named after Wolfgang Stolper and Paul Samuelson, who co-authored the 1941 paper in which the theorem was explained. In its most general form, the theorem states that a change in the price of a good changes, in the same direction and more than proportionally, the price of the factor used intensively in the good's production. By adding the assumption of the HO model (which implies that a country has a comparative advantage in the good that uses the abundant factor intensively), the Stolper-Samuelson

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theorem means that opening trade raises the real reward to the abundant factor and lowers the real reward of the scarce factor (Yarbrough & Yarbrough, 2000).

The reason behind this is that trade boosts production of the good that has a comparative advantage and it increases the opportunity cost and the relative price of the good in question. The HO model defines comparative advantage in terms of intensive use of the abundant factor; whilst trade raises the price of the good that uses the abundant factor intensively - thereby raising the price of the abundant factor.

The Stolper-Samuelson theorem clarifies one reason for the controversial nature of trade policy. The opening up of trade leads to output price changes that alter real factor rewards, thus creating incentives for owners of the abundant input to support unrestricted trade and for owners of the scarce input to resist moves towards unrestricted trade. It is important to remember that the country as a whole is potentially better off by trade; that is, the winners from trade (owners of the abundant factor) gain enough from open trade to allow them to compensate the loser (owners of the scarce factor) and still be better off. However, such compensation, although theoretically possible, rarely occurs. Therefore, the Stolper-Samuelson theorem clearly pinpoints the existence of at least one constituency for protectionist policies or restrictions on trade.

The Stolper-Samuelson theorem highlights the relationship between output prices and factor prices within a single country. The next result to emerge from the basic trade model deals with the relationship between relative factor prices in the two countries.

2.2.3.3 The Factor Price Equalisation theorem

It is easy to see that trade tends to equalise the price of each good traded across countries. Autarky output prices converge to the international terms of trade. But what about factor prices in various countries? The Factor Price Equalisation theorem which Paul Samuelson first demonstrated in 1948 states that trade raises the real reward of a factor in the country where that factor is abundant and lowers its price in the country where it is

scarce. Thus, even when factors are immobile between the two countries, unrestricted trade on goods tends to equalise the price of each factor across countries (Leamer, 1984).

However, strong conditions are needed for factor price equalisation to occur. These conditions include zero transportation costs, no trade barriers and identical technology. One interesting implication of factor price equalisation is that foreign investment may not be necessary if there is free trade. Foreign investment can be understood as an international transfer of production factors such as technology, capital and labour (Cho & Moon, 2002). This is a viable strategy only when the prices of these factors are not equal between countries. With factor price equalisation, there is no need to invest abroad. In the real world, however, there are many obstacles or market imperfections that stand in the way of complete equalisation of factor prices.

The Factor Price Equalisation theorem is still useful and some important implications can be derived from it. For example, the manner in which trade liberalisation affects income gaps between countries. The theorem predicts that income gaps will be reduced by lowering trade barriers. Two important conclusions can be derived from this: Firstly, with the formation of a trading bloc, the country of low income will benefit more than the country of high income. Secondly, a lesser developed country should actively pursue an open door policy to increase its income levels.

2.2.3.4 Rybczynski theorem

The Rybczynski theorem, developed by T.M. Rybczynski and published in 1955 in the November issue of the Economica, states that at constant commodity prices an increase in the supply of a factor will lead to an increase in the output of the commodity that uses that factor intensively and a reduction in the output of the other commodity (Leamer, 1984).

Suppose a country's capital stock increases by 10 percent and its labour force remains unchanged. As the capital stock increases, the output of the capital-intensive good

expands with the utilisation of the extra supply of capital. In contrast, the output of the labour-intensive goods decreases because labour is leaving the sector. As the capital stock increases, the production possibility frontier bulges out in the direction of the capital-intensive good so that the country's production should be larger than before. Since the output of the labour-intensive good decreases absolutely, the output of the capital-intensive good should increase by more than 10 percent.

This theorem is useful in explaining the pattern of economic development of Japan and Korea (Cho & Moon, 2002). These countries have had high savings and investment, and produced more capital-intensive goods. Labour-intensive sectors have actually shrunk in these countries because the labour force has been released into the booming capital-intensive sectors. Therefore, an important implication of this theorem is that a country can change its relative factor endowments by changing its investment patterns, while factor endowments are fixed in the world of the classical theories of Smith and Ricardo.

2.2.3.5 Salter-Swan theorem

Exchange rates became an essential determinant of comparative advantage with the work of Salter (1959), Swan (1960), and other Australian economists. Perhaps because of their remote geographical location, their "Salter-Swan" or "Australian" models emphasise the fact that not all goods, which are consumed domestically, can be traded internationally. Goods with high transport costs relative to their value will be "none traded", so their prices will not be influenced by imports and exports. In this case, for a given level of domestic prices and inflation, a higher ("devalued") currency exchange rate leads to more goods being exported while fewer are imported.

2.2.3.6 Concluding remarks about the Neoclassical models

From Ricardo to Salter-Swan, these Classical and Neoclassical models are all fundamentally compatible and all yield the same conclusions as to the central determinants of comparative advantage. They suggest that the pattern of national

comparative advantage can best be measured by comparing production costs with product value, where non traded goods and national resources are valued at domestic opportunity costs while tradable goods are valued at opportunity costs in trade.

Economists have developed alternative theories of international trade because the neoclassical models do not work well in the real world. The alternative theories led to somewhat different measurement techniques. Recognising the increasing diversity of international trade, the new theories are useful in explaining some special cases of international trade. Next, the essential challenges to neoclassical comparative advantage theory will be described.

2.2.4 Challenges to the Comparative Advantage theory

2.2.4.1 The Linder theory of overlapping demand

Another Swedish economist, Stefan Linder (1961), recognised that although the supply-oriented Heckscher-Ohlin theory, which depended on factor endowments, was adequate to explain international trade in primary products, another explanation was needed for trade in manufactured goods. Linder's (1961) demand-oriented theory stated that customers' tastes are strongly affected by income levels and therefore a nation's income per capita level determines the kinds of goods they will demand. Because industry will produce goods to meet this demand, the kinds of products manufactured reflect the country's income per capita level. Goods produced for domestic consumption will eventually be exported (Hitt, Ireland & Hoskisson, 2001).

The Linder theory deduces that international trade in manufactured goods will be greater between nations with similar levels of per capita income than between those with dissimilar per capita income levels. The goods that will be traded are those for which there is an overlapping demand (consumers in both countries are demanding the same good). Note that the Linder model differs from the model of comparative advantage in that it does not specify in which direction a given good will flow. In fact, Linder

specified that a good may go in either direction. Thus intra-industry trade occurs because of product differentiation.

2.2.4.2 Technology-based theory of trade: The Product Cycle

A very different path was taken by Raymond Vernon in 1966 with what is now termed "the Product Cycle theory". Diverging significantly from traditional approaches, Vernon (1966) focused on the product, and not its factor proportions. Most striking, however, was the appreciation of the role of information and knowledge, as well as for the cost and power that go hand-in-hand with knowledge.

The Product Cycle hypothesis begins with the assumption that the stimulus to innovation is typically provided by some threat or promise in the market. In other words, firms tend to be stimulated by the needs and opportunities of the market closest at hand, the home market. The home market plays a dual role in this hypothesis. Not only is it the source of stimulus for the innovation; it is also the preferred location for production.

Using many of the same basic tools and assumptions of factor proportions theory, Vernon (1966) added two technology-based premises to the factor-cost emphasis of existing theory:

?   Technical innovations leading to new and profitable products require large quantities of capital and highly skilled labour. These factors of production are predominantly available in highly industrialised capital-intensive countries.

?   Both the product itself and more importantly the methods for its manufacturing, go through three stages of maturation – the new product stage, the maturing product stage and the standardised product stage – as the product becomes increasingly commercialised. As the manufacturing process becomes more standardised and low-skill labour-intensive, the comparative advantage in its production and export shifts across countries.

Although interesting in its own right for increasing the emphasis on the impact of technology on production costs, the most important contribution by the product cycle theory was to explain why international investment takes place. Not only did the theory recognise the mobility of capital across countries, it also shifted the focus away from the country to the product. In order to examine competitiveness, this theory proved it essential to match the product by its maturity stage with its production location (Hough & Neuland, 2000).

2.2.4.3 Economies of scale and the experience curve

In the 1920's, economists began to consider the fact that most industries benefit from economies of scale; that is, as a plant gets larger and output increases, the unit cost of production decreases. This is because larger and more efficient equipment can be employed, companies can obtain volume discounts on their larger volume purchases, and fixed costs such as those of research and design and administrative overheads can be allocated over a larger quantity of output. Production costs also drop because of the learning curve. As firms produce more products, they learn ways to improve production efficiency causing production costs to decline by a predictable amount (Cho & Moon, 2002).

Economies of scale and the experience curve affect international trade because they permit a nation's industries to become low-cost producers without having an abundance of a certain class of production factors. Then, just as in the case of comparative advantage, nations specialise in the production of a few products and trade with others to supply the rest of their needs.

The basic HO model assumes constant returns of scale. Thus, if input were doubled, output would be doubled. In many industries, however, there exist economies of scale (or increasing returns). Thus, if input were doubled, output would become more than doubled. The existence of economies of scale explains some trade patterns that cannot be explained by the HO model. If economies of scale exist, countries (or firms) could

benefit from specialisation in the production of a limited range of goods. The specification of a market structure consistent with economies of scale internal to firms, delayed for many years the formal modelling of trade based on increasing returns of scale. The breakthrough came in the late 1970s, when Krugman (1979) and Lancaster (1979) independently developed models of trade in differentiated products.

Suppose there are two countries and two types of cars (large cars and small cars). Also suppose that there is a demand for both cars in each of the two countries. If there were economies of scale, it would be advantageous for each country to specialise in the production of only one type of car rather than both types. If there is free trade between the two countries, consumers in each country can buy both cars. Economies of scale and international trade make it possible for each country to produce goods more efficiently without sacrificing the variety of goods (Yarbrough & Yarbrough, 2000).

There are basically two types of trade: inter-industry trade (reflects comparative advantage) and intra-industry trade (trade in which a single country both imports and exports products in the same industry) (Krugman & Obstfeld, 1991). Countries that are relatively similar and therefore have few comparative differences may not engage in inter-industry trade. As an extreme example, suppose that two countries have identical factor endowments. The HO model would then predict no trade. If there were economies of scale, however, there would be benefits of trade from specialisation by each country. Therefore, trade between countries with dissimilar factor endowments is largely inter-industry, but trade between countries with similar factor endowments is largely intra-industry. Intra-industry trade comprises a significant share of world trade, particular in manufactures and it increases over time. (Balassa, 1967; Yarbrough & Yarbrough, 2000). The intra-industry trade model, based on economies of scale, is useful in explaining the trade of manufactured goods among developed countries.

There are two problems with the model. Firstly, the empirical measures of intra-industry trade are overstated because the aggregation is too broad. Much of the apparent trade would disappear if goods were further desegregated. Secondly, the model does not

explain which country produces which goods, so the pattern of intra-industry trade is unpredictable (Cho & Moon, 2002).

2.2.5 Conclusion on traditional trade theories

The traditional trade theories have been discussed. None of these theories has discontinued existing. They remain useful in understanding many of today's industrial and trade policies. For example, the theory of comparative advantage is a basic guideline for many countries when they consider trade policies. Even mercantilism, a popular theory before Adam Smith, is important for some countries. However, no single theory is satisfactory in explaining today's international trade and competitiveness because today's world is much more complicated than before.

The primary goal of theory is to recognise the most important variables in order to simplify the phenomena and to make it easier to understand the world. For example, the theory of comparative advantage treats only one variable, i.e. factor endowments, but not other important variables such as demand conditions. It was effective at the time this theory was introduced because the world was not so complicated. Today's global economy is different, as explained in Chapter one. Several important variables have to be considered simultaneously in the trade or competitiveness formula. One recent, important development that addresses this issue is Michael Porter's (1990, 1998) "diamond model", which will be discussed next.

2.2.6 Competitiveness theories

2.2.6.1 Porter's Competitive Advantage of Nations

Competitive advantage analysis, as practiced by Michael Porter (1990), an economics professor at Harvard University, consists of examining case studies of successful industries to identify why they are located in particular countries: *we need a new perspective and new tools – an approach to competitiveness that grows directly out of an*

analysis of internationally successful industries, without regard to traditional ideology or current intellectual fashion. We need to know, very simple, what works and why." Porter (1990) studied 100 firms in ten developed nations to learn if a nation's prominence in an industry can be explained more adequately by variables other than the factors of production on which the theories of comparative advantage and Heckscher-Ohlin are based.

The product of a four-year study of the patterns of competitive success in ten leading trading nations, which contradict the conventional wisdom that guides the thinking of many companies and national governments today, will be discussed now.

According to Porter (1990, 1998) national prosperity is created, not inherited. It does not grow from a country's natural endowments - its labour pool, its interest rates, or its currency's value - as classical economics insists. A nation's competitiveness depends upon the capacity of its industry to innovate and upgrade. Companies gain advantage against the world's best competitors because of pressure and challenge. He argued that countries benefit from having strong domestic rivals, aggressive home-based suppliers and demanding local customers.

"In a world of increasingly global competition, nations have become more, not less important. As the basis of competition has shifted more and more to the creation and assimilation of knowledge, the role of the nation has grown. Competitive advantage is created and sustained through a highly localized process. Differences in national values, culture, economic structures, institutions and histories all contribute to competitive success. There are striking differences in the patterns of competitiveness in every or even most industries. Ultimately, nations succeed in particular industries because their home environment is the most forward-looking, dynamic and challenging" (Porter, 1990).

Porter (1990) criticised the traditional doctrine, that it is at best incomplete and at worst incorrect. Around the world, companies that have achieved international leadership,

employ strategies that differ from each other in every respect. While every successful company will employ its own particular strategy, the underlying mode of operation – the character and trajectory of all successful companies – is fundamentally the same.

Companies achieve competitive advantage through acts of innovation. They approach innovation in its broadest sense, including both new technologies and new ways of doing things. They perceive a new basis for competing or find better means for competing in old ways. Innovation can be manifested in a new product design, a new production process, a new marketing approach, or a new way of conducting training (Porter, 1990).

Why are certain companies, based in certain nations, capable of consistent innovation? Why do they ruthlessly pursue improvements, seeking an evermore sophisticated source of competitive advantage? Why are they able to overcome the substantial barriers to change and innovation that so often accompany success?

According to Porter (1990:71-128) the answer lies in four broad attributes of a nation, attributes that individually and as a system constitute the diamond of national advantage, the playing field that each nation establishes and operates for its industries. These attributes are – see Figure 2.2:

- ? **Factor conditions.** The nation's position in factors of production, such as skilled labour or infrastructure, necessary to compete in a given industry.

- ? **Demand conditions.** The nature of home-market demand for the industry's products or service.

- ? **Relating and supporting industries.** The presence or absence in the nation of supplier industries and other related industries that are internationally competitive.

? **Firm strategy, structure and rivalry.** The conditions in the nation governing how companies are created, organised and managed, as well as the nature of domestic rivalry.
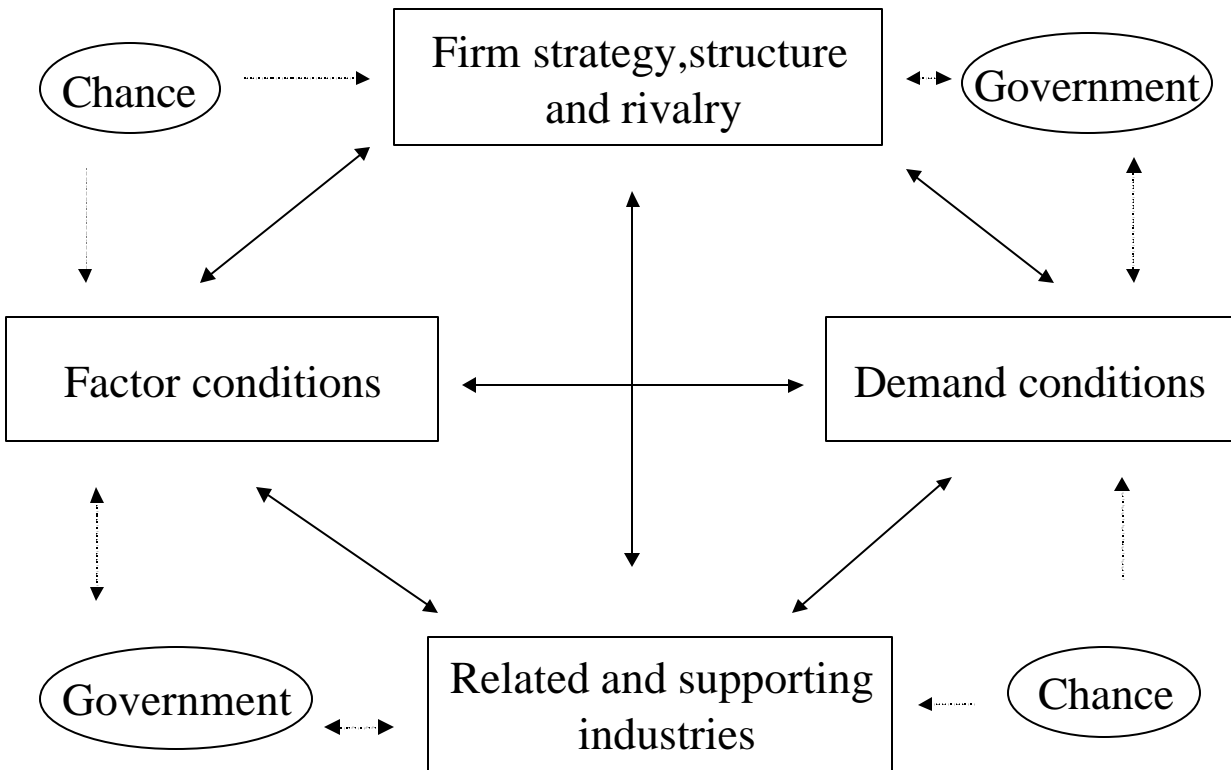
Figure 2.2: Porter's diamond
Source: Porter, 1990

According to Porter (1990), these determinants create the national environment in which companies are born and learn how to compete. Each point on the diamond – and the diamond as a system – affects essential ingredients for achieving international competitive success. The availability of resources and skills necessary for competitive advantage in an industry; the information that shapes the opportunities that companies perceive and the directions in which they deploy their resources and skills; the goals of

the owners, managers and individuals in companies; and most important, the pressure on companies to invest and innovate.

Porter (1990: 124 – 128) also includes two outside variables to the model, namely the role of chance and the role of government. Chance events are occurrences that have little to do with circumstances in a nation and are often outside the power of firms (and often the national government) to influence. Examples include new inventions, major new technologies such as biotechnology, and discontinuities in input costs such as the energy crisis, financial market shifts, foreign government decisions and wars. Such events can nullify sources of competitive advantage and create new ones. The ability of an industry to respond will depend upon the status of other parts of the competitive diamond. The latter also affects the environment for invention and entrepreneurship and hence where they will occur.

The role of government is best view in terms of its influence on the four determinants of competitiveness rather than as a separate determinant. Porter explicitly rejects trade intervention, which he writes, just "guarantees a market for inefficient companies" (Porter, 1990). Porter further argued that government's proper role is as a catalyst and challenger; to encourage – or even push – companies to raise their aspirations and move to higher levels of competitive performance, even though this process may be inherently unpleasant and difficult. Government cannot create competitive industries, only companies can do that. Government plays a role that is inherently partial, this succeeds only when it works in tandem with favourable underlying conditions in the diamond. Still, government's role of transmitting and amplifying the forces of the diamond is a powerful one. Government policies that succeed are those that create an environment in which companies can gain competitive advantage rather than those that involve government directly in the process. It is an indirect, rather than a direct, role.

Porter's new model on competitiveness was not without criticism (Ryan, 1990; Rugman, 1991; Rugman & D' Cruz, 1993; Moon, Rugman & Verbeke, 1995). In particular, Porter's treatment of multinational activities and government is not convincing.   In the

next section, extensions to the Porter model will be discussed. With respect to this study, the Porter framework will largely be adopted to analyse the competitiveness of the agribusiness sector operating in South Africa.

2.2.6.2 Extension to the Porter Diamond Model

2.2.6.2.1 Double Diamond framework

The Double Diamond framework, developed by Rugman and D' Cruz (1993) suggest that managers build upon both domestic and foreign diamonds to become globally competitive in terms of survival, profitability and growth.

Rugman and D' Cruz (1993) believed that in a world of liberalised trade, Porter's definition of "home market", and hence the size and shape of the "diamond", needed to be modified. In particular, they argued that the Canada-USA Trade Agreement meant that the Canadian diamond is really a Canada-USA diamond. The reason is that Canadian manufacturers, for example, can and must respond to USA buyer needs and have ready access to USA supplier firms. Rugman and D' Cruz (1993) also disagree with Porter's treatment of multinational firms, citing the major contribution that such firms make to the Canadian economy, even though the firms may not consider Canada their "home base".

Porter and Amstrong (1993) responded to Rugman and D' Cruz's criticism by saying that they have a lack of understanding of the diamond model. Porter and Amstrong (1993) said they fail to distinguish between the geographic scope of competition and the geographic locus of competitive advantage, as reflected in the diamond. Competition in the automobile industry is global, but that does not mean there is a 'world diamond' for automobile manufacturing and that firms based in all nations are equally positioned. For example, Japanese-based firms, with their striking competitiveness, have been fuelled by a strong local diamond in which rivalry was intense, customers demanding and related and supporting industries well developed (Porter & Amstrong, 1993).

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2.2.6.2.2 The Generalised Double Diamond model

Although Rugman and D' Cruz (1993) Double Diamond framework fits well for Canada, it does not apply well to other small nations such as Korea and Singapore. Moon, Rugman and Verbeke (1995) adapted the Double Diamond framework to a Generalised Double Diamond, which works well for analysing all small economies.

Firms from small countries, such as Korea and Singapore, target resources and markets not just in a domestic context, but also in a global context. Therefore, a nation's competitiveness depends partly upon the domestic diamond and partly upon the "international" diamond relevant to its firms. The difference between the international diamond and the domestic diamond represents international or multinational activities. The multinational activities include both outbound and inbound foreign direct investment.

In the Generalised Double Diamond model, national competitiveness is defined as the capability of firms engaged in value added activities in a specific industry in a particular country to sustain this value added over long periods of time in spite of international competition.

Theoretically, three methodological differences between Porter and this new model are important. Firstly, sustainable value added in a specific country may result from both domestic and foreign owned firms. Porter, however, does not incorporate foreign activities into his model as he makes a distinction between geographic scope of competition and the geographic locus of competitive advantage (Porter & Amstrong, 1992). Secondly, sustainability may require a geographic configuration spanning many countries, whereby firm specific and locational advantages present in several nations may complement each other. In contrast, Porter (1990) argues that the most effective global strategy is to concentrate as many activities as possible in one country and to serve the world from this home base. Thirdly, the new model includes government, not as an

exogenous parameter, but as an important variable which influences the four determinants of the diamond model.

2.2.6.2.3 The Nine Factor model

Cho (1994) also argues that Porter's original model is limited in its application to developing countries such as Korea. Cho (1994) modified Porter's diamond model to take into account the Korean experience. He divided sources of international competitiveness into two broad categories: "physical" factors and "human" factors. By "physical" factors, Cho (1994) referred to endowed resources, the business environment, related and supporting industries and domestic demand, which combined determine the level of international competitiveness of a given nation at a given time.

Human factors include workers, politicians and bureaucrats, entrepreneurs and professional managers and engineers. By creating, motivating and controlling the four physical elements, these human factors drive the national economy from one stage of international competitiveness to the next.

An external factor of pure chance is added to these eight internal factors to make the new paradigm a nine-factor model. The relative importance of each of the eight physical and human factors changes as the national economy moves from a less developed stage to a development stage, to a semi-developed stage and finally to a fully developed stage.

The difference between the nine-factor model and Porter's diamond model are in the division of factors, and in the addition of new factors (see Figure 2.3). The diamond model includes both natural resources and labour in factor conditions, but the nine-factor model places natural resources under endowed resources, while labour is included within the category of workers. Human factors mobilise the physical factors with the aim of obtaining international competitiveness.

The Diamond model	The Nine Factor model		
1. Factor condition	1. Endowed Resources		
	2. Business environment	Physical	
2. Firm Strategy	3. Related & supporting industries	Factors	
Structure & Rivalry	4. Domestic demand		
			Internal
3. Related & supporting	5. Workers		Factors
	6. Politicians & Bureaucrats	Human	
4. Demand conditions	7. Entrepreneurs	Factors	
5. Government	8. Professional Managers & Engineers		
			External
6. Chance	9. Chance, Events		Factors

Figure 2.3: Comparison of the Diamond and the Nine-Factor models

Source: Cho & Moon, 2002

2.3 DEFINING COMPETITIVENESS

The volume of literature on competitiveness is growing in economics and business studies but there is little agreement on what the term means. However, there has been no shortage in definitions for competitiveness and why some nations, industries and sectors are competitive and others not. Expressing his frustration with the term "competitiveness", the American Secretary of Labour, Robert Reich, has remarked that "rarely has a term in public discourse gone so directly from obscurity to meaninglessness without an intervening period of coherence" (Wall Street Journal, 1992). This lack of coherence regarding the definition and measurement of competitiveness makes it difficult to compare research results as they accumulate around the world.

Freebairn (1986) defined competitiveness as an indicator of the ability to supply goods and services in the location and form and at the time they are sought by buyers, at prices

that are as good as or better than those of other potential suppliers, while earning at least the opportunity cost of returns on resources employed. This definition was also used in a study by the Institute of Mathematical and Economic Sciences Applied (ISMEA) in analysing the challenges of global competition on the European Agro-Food system (ISMEA, 1999). Two types of competition are included in this definition. Firstly, the competition on domestic and international product markets and thus the ability to gain and maintain market shares, and secondly, the competition in factor markets, where those factors employed in producing the goods have to earn at least the opportunity costs.

Sharples (1990) argued that comparative advantage is theoretical, explaining trade and optimal welfare in an undistorted world. Competitiveness, on the other hand, relates to the observable reality, he argued. If firms and industries cannot survive by selling at the going price, they are not competitive. If they are able to survive and increase market share, they have become more competitive. Note, however, that an increase in competitiveness of an industry, possibly the result of government support, does not necessarily imply an increase in national welfare.

Petit and Gnaegy (1994) stated that competitiveness is the ability to produce and provide goods and services to international markets, while ensuring rising levels of real income as well as investment. The Agri-food Policy Directorate of Agriculture Canada (1993:v-vi) describe the concept of international competitiveness as follows: As applied at the product, firm, industry or sector level, there are basically two common approaches to defining competitiveness. One is in terms of its results, especially the ability to profitably gain and maintain market share. The second is to define it in terms of its attributes, that is, the ability to profitably provide buyers with a product-price combination that is at least as attractive as that offered by other suppliers. More specifically, the definitions are:

"The sustained ability to profitably gain and maintain market share in domestic and/or export markets" - Agri-food Policy Directorate of Agriculture Canada (1993)

The American definition of competitiveness that was developed by the President's Commission on Industrial Competitiveness (1985) is stated as the degree to which a nation can, under free and fair market conditions, produce goods and services that meet the tests of international markets while simultaneously expanding the real incomes of its citizens.

South Africa's previous minister of Trade and Industry, Mr. Alex Erwin (1999) argued the following important notions about competitiveness:

? It is firms or industries that are competitive – government can only create the enabling environment.

? Competitiveness is the ability to sustain a firm/industry's economic performance in the long run.

? Competitiveness is the ability of firms/industries to perform in international markets i.e. global economy.

Worley (1996) explains the difference between comparative advantage and competitive advantage as follows: Comparative advantage explains how trade could potentially benefit nations through more efficient use of the resource base (land, labour, and capital input) when trade is totally unrestricted. Competitive advantage, on the other hand, explains existing trading patterns as they occur in the real world, including all distortions and barriers to free trade i.e. policy effects, price effects, product quality differences and industry marketing skills - which are ignored by comparative advantage (Worley, 1996). Competitive advantage therefore reflects real business opportunities within current policy and price distortions.

Cho (1994) argued that there is a widespread misconception about competitiveness, caused by dividing international competitiveness into two categories, namely: price competitiveness, such as nominal wages, exchange rates and labour productivity; and

non-price competitiveness, such as quality, marketing, service and market differentiation. In order to gauge price competitiveness, export price, production cost and consumer or wholesale price indices are used. Rising prices are seen as weakening a nation's international competitiveness. In reality there are cases in which nations with strong international competitiveness can and do raise the price of their products. Quality status, durability, designs and consumer satisfaction are used to evaluate non-price competitiveness, but there are no empirical studies to prove their influence. Price and non-price factors are not the causes but the results of a nation's international competitiveness (Cho, 1994).

Cho (1994) then defined international competitiveness of a national industry by its having a superior market position through high profits and constant growth when compared to competitors. A country cannot possess international competitiveness simply because it has one or two successful industries. A nation needs to have a multitude of industries with strong competitiveness. A nation needs the sources of competitiveness, which can then be applied to a number of industries. A nation, therefore, is internationally competitive when it has many industries with competitive advantage based on common sources of competitiveness.

The Oxford English Dictionary (Oxford, 2002) defines competitiveness as derivatives of "competitive" which means the following:

- having to do with competition
- strongly wanting to be more successful than others
- as good as or better than others of a similar nature

Competition is defined as:

- the activity of competing against others
- an event or contest in which people compete
- the person or people with whom one is competing

Compete, competes, competing, competed means to try to gain or win something by defeating others. The origin for compete is from the Latin word *competere,* which means, "to strive together".

A competitor is:

- A person who takes part in a sporting contest
- An organisation competing with others in business.

From these definitions it is clear that when you compete you can either win or lose. To win is to be successful, victorious or to gain in a contest or conflict. To lose means to fail to win a game or contest.

Let us consider the psychology of competition. When do we compete? We compete at any time when we are involved with another person or business and we are not in cooperation with that person or business. Psychiatrist Karen Horney (1990), stated that there are three ways of dealing with others: moving toward them, moving against them (aggression), and moving away from them (withdrawal). From our perspective, there are only two options for involvement: cooperation, in correspondence with Horney's "moving toward", and competitive, in correspondence with her "moving against" and "moving away".

"Moving against" can be simply defined as competing, but the question is how "moving away" qualifies as being competitive. It is simply passive competition. The person moving away refuses to give, thereby robing you of the benefits of his or her contribution. Whoever is not cooperating with you is therefore competing against you.

Cooperation implies relating as equals. This can be called the "horizontal" dimension - two people coming together on a horizontal level. Competition, by definition, is a vertical orientation. It implies vertical thinking: who is above, who is below, how do I

rate in relation to others? True equality and competitiveness do not coexist! (Olson, 1990).

Why do we compete? People and companies will often behave in accordance with the manner in which the system is set up. If it is competitive, they will compete. If the system rewards cooperation, cooperative behaviour is more likely to occur, provided people can move beyond the imperatives of their culturally ingrained competitiveness (Olson, 1990).

Today, nations and companies compete because world markets are open. The aftermath of the Great Depression had persuaded nations to start lowering their trade barriers. Many scholars and J.M. Keynes in particular, have shown that an economic slowdown in 1929 developed into a worldwide depression in the 1930's because nations adopted protectionist policies. In order to prevent such a situation occurring again, liberalized trade was argued. Currently, tariffs on non-agricultural goods are less than 4% among members of the World Trade Organization (WTO). In addition, the OECD, since its creation, has fostered the development of the free movement of capital, goods and services worldwide (IMD, 2005).

When contests exist as part of everyday life, it is nearly impossible to avoid thinking in win-lose terms. Competing comes naturally. Creating win-win situations is much more difficult.

On a deeper level, competition is rooted within our personal insecurity, which manifests itself in a desperate desire to prove our own worth and capabilities as much to ourselves as to others. We have the mistaken notion that, through competing, we might earn love and approval. This rarely occurs on any permanent basis, instead, and more often a winner faces envy from his or her opponents. Winning is transitory - it's always up for grabs. This is the insidiousness of competition. Once you are "inside the system", it is very difficult to break free.

The various social theories regarding competition all boil down to one practical definition: Competition is to vie with an opponent whom you are trying to beat, or to compete against an external or internal standard in order to achieve a particular goal.

When opponents are involved, the implication is that the goal cannot be shared equally amongst all contestants. Therefore, the closer your opponents get to the goal, the worse your chances become of achieving it. This aspect is critical. If you are both competing for a goal that cannot be shared, your opponent's behaviour is linked to yours in a negative way. Your changes of achieving the goal are out of your direct control, because they depend not only upon what you do, but also upon what your opponent does.

Consequently, there are two ways of improving your chances of winning: Improve your performance or advantage (honestly or by cheating) or undercut or impede your opponent's progress. Either one or both these methods can be used. Theoretically, in a competition in which your chances of success are directly related to your opponent's actions, either of the two options will work equally well. Unfortunately, it is usually easier to "trip" your opponent than to be consistently excellent.

The more scarce or limited the goal, the stiffer the competition usually becomes. In a limited competition the prize is limited to either one or merely a few. For example, at the Rugby World Cup, there can only be one winner. This situation can be compared to an unlimited contest where anyone who meets a certain criterion "wins" the prize.

What then is the value of competition? Competition is a powerful tool and an essential dimension of economic life among firms and countries. Competing for the efficient exploitation of natural resources and the generation of new means to satisfy individual and collective needs at lower costs and higher quality has contributed greatly to the improvement of both material and non-material levels of well-being. Competition has stimulated new levels of human aspiration and made great achievements possible by being one of the driving forces behind technological innovation and productivity growth (The Group of Lisbon, 1995).

Beyond the economic sphere, competition is also one of the fundamental sources of mobilisation and creativity in the political arena, the artistic culture sphere, as well as in the world of sports. Democracy – one of the greatest social achievements in the history of humankind - is based on both political competition (between groups and parties) and co-operation.

Returning to the economics of competitiveness, however, Krugman (1994) warns against a dangerous obsession with competitiveness. He argues that competitiveness is a meaningless word when applied to national economics and that the obsession with competitiveness is both wrong and dangerous. If national competitiveness is interpreted in very broad terms (say, as the ability to produce income or productivity growth), it can be simply considered as part of a development or growth strategy - there is no need to consider it separately. A narrower, more tractable definition is to consider the country's ability to compete in trade (particularly exports). Lall (2001) warns that while this is the way in which most governments understand competitiveness, it must be handled carefully. For instance, an increase in the export of unprocessed resources may not necessarily count as enhanced competitiveness; in fact, it often leads to the contrary. Similarly, improved short-term performance in manufactured exports based on the exploitation of a static advantage such as cheap, unskilled labour, may not be regarded as 'real' improvement in competitiveness.

Competitiveness is intuitively a relative concept (Pitts & Lagnevik, 1997). Competitiveness is concerned with performance *vis-à-vis* that of a competitor, whether it be a firm or an economy. Nowadays, with the dramatic changes in markets, it is important to emphasise that competitiveness is also a dynamic concept, concerned with maintaining or gaining market share into the future (Pitts & Lagnevik, 1997).

Porter argues (2002:30) that competitiveness remains a concept that is not well understood, despite the widespread acceptance of its importance. The most intuitive definition of competitiveness is a country's share of world markets for its products. This makes competitiveness a zero-sum game, because one country's gain comes at the

expense of others. This view of competitiveness is used to justify interventions to skew market outcomes in a nation's favour. It also underpins policies intended to provide subsidies, the holding down of local wages, and the devaluation of a nation's currency, all aimed at expanding exports.

Porter (2002) argues then that true national competitiveness is measured by productivity. Productivity allows a nation to support high wages, a strong currency, and attractive returns to capital – and with that comes a high standard of living. Productivity is the goal, not export per se. National productivity will only rise if a nation expands exports of products or services that it can produce productively. Productivity is the goal - not whether the firms operating in the country are domestic or foreign owned. In a particular country what matters most is not ownership, but the nature of productivity of the companies' activities. Purely local industries also have an influence on competitiveness, because their productivity has a major influence on the cost of living and the cost of doing business, not to mention their level of wages. The productivity of the entire economy impacts on the standard of living, not just the traded goods sector (Porter, 2002).

The world economy is not a zero-sum game. Many nations can improve their prosperity if they can improve productivity. The central challenge in economic development is then to create favourable conditions for rapid and sustained productivity growth (Porter, 2002).

Given the inherent ambiguities, however, it is not surprising that analysts use different definitions. For instance, Boltho (1996) defines international competitiveness as the highest possible growth of productivity that is compatible with external equilibrium. This formulation leaves open what 'productivity' means and how it is to be measured. In contradiction to this, Corden (1994) argues that one might call an industry "internationally competitive" if it produces tradables and if it is profitable. A reduction in competitiveness is then a reduction in profitability in some or all tradable industries.

The OECD (1994) defines competitiveness as the ability of companies, industries, regions, nations and supranational regions to generate, while being, and remaining, exposed to international competition, relatively high factor income and factor employment levels on a sustainable basis.

The principal feature of competition is the conflict of interests between entities in general, expressed by their desire to be more successful than the others. Therefore, competitiveness is an ability to co-exist with other institutions under conditions of conflicting interests. Reiljan *et al* (2000:11) identified three levels that characterised this type of coexistence (competitiveness):

? The ability to survive – the lowest level of competitiveness - refers to the ability to adapt passively to the competitive environment without significantly changing or developing itself.

? The ability to develop – the medium level of competitiveness - refers to the ability to respond actively to the changes in the competitive environment and thereby improving its own qualities by making its activities more efficient.

? Superiority – the highest level of competitiveness - refers to the ability to influence the competitive environment through more efficient operation, quicker development or better qualities than competitors.

Other definitions and views of competitiveness found in literature, include:

? Competitiveness is "the ability of a nation to produce, distribute, and service goods in the international economy in competition with goods and services produced in other countries and do so in a way that earns a rising standard of living" – Scott and Lodge (1985).

? Competitiveness is "a national ability to produce and market products in international trade while earning a level of returns to the resources (both human and physical) used to produce those products which is at least comparable to what those resources could earn in alternative activities" – Langley (1986).

? "… the measure of US agriculture's international competitiveness may not necessarily be whether the peak market shares of the 1970's can be regained. Rather, the focus for the future may resolve around whether USA producers can profit from their exports" – USA Congress, Office of Technology Assessment (1986).

? "Competitiveness is relative and not absolute. It depends on shareholder and customer values, financial strength which determines the ability to act and react within the competitive environment and the potential of people and technology in implementing the necessary strategic changes. Competitiveness can only be sustained if an appropriate balance is maintained between these factors which can be of conflicting nature." – Feurer & Chaharbaghi (1994).

? "For a firm, competitiveness is the ability to design, develop, manufacture and market products at home and in other nations in competition with other firms. For a nation, it means doing all this without a decline in the real standards of living of its citizens." – US Congress, Office of Technology Assessment (1986).

? "Competitiveness includes both efficiency (reaching goals at lowest possible cost) and effectiveness (having the right goals). It is thus the choice of industrial goals which is crucial. Competitiveness includes both the ends and the means towards those ends." – Buckley, Christopher & Prescott (1988).

? "Competitiveness is a statement about differences in market prices, government interventions and everything else factored in." – Dunmore (1989).

? "Competitiveness can be broadly defined as the ability to sell commodities to overseas buyers at prices as low as or lower than those of other potential suppliers while earning at least opportunity cost returns on domestic resources used to produce and market these commodities." – Volrath (1989).

? Competitiveness of a country is the "ability to achieve sustained high rates of growth in GDP per capita" - World Economic Forum (1996).

? Competitiveness of an enterprise is the "ability to design, produce and market goods and services, the price and non-price characteristics of which form a more attractive package than those of competitors." – World Economic Forum (1996).

? "Competitiveness is a field of Economic knowledge, which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people." - International Institute for Management Development (IMD) (2003).

? "… comparative advantage applies to a world of efficient well–functioning and undistorted markets. Competitiveness applies to the world as it actually is." – Barkema, Drabenstott and Tweeten (1990).

? "Competitiveness is a structural quality built into public and private institutions and ultimately woven into its social, economic and political fabric. […] Competitiveness depends on competition and economic efficiency; and innovation is the result." – Purchase (1991).

? "National competitiveness is better defined by reference to broader indicators that show the extent to which a country's involvement in global markets through trade, investment and technology, flows to growth in real income." – Economic Council of Canada (1992).

? "We should be a knowledge economy where the basis for competitiveness will be the capabilities and intellectual capital to absorb, process and apply knowledge. We should have a strong technological capability and a vibrant entrepreneurial culture that thrives on creativity, nimbleness and good sense". – Singapore's Competitiveness Vision, Committee on Singapore's Competitiveness (Nabi & Luthria, 2002).

? "Competitiveness has emerged as the pre-eminent issue in many nations. Achieving global competitiveness calls for a nation to upgrade its exports. Competitiveness also requires a nation's government and companies to have a shared vision about what competitiveness is and how it can be achieved. Competitiveness is not a simple macroeconomic adjustment, a favourable exchange rate, a positive trade balance, industrial subsidies, or a low inflation rate. Rather, competitiveness is the ability to achieve high productivity, relying on an innovative deployment of human resources, capital and physical assets. Competitiveness is the capacity to create value for increasingly sophisticated consumers who are willing to pay premium prices for the improved value that they perceive." – The Monitor Company (Nabi & Luthria, 2002).

? "The need to improve our competitiveness is not imposed by Government, but by changes in the world economy. Improving competitiveness is not about driving down living standards. It is about creating a high skills, high productivity and therefore high wage economy where enterprise can flourish and where we can find opportunities rather than threats in changes we cannot avoid." – UK Government, third competitiveness White Paper, UK Cabinet Committee (Nabi & Luthria, 2002).

? "Competitiveness in industrial activities means developing relative efficiency along with sustainable growth" and "national competitiveness does not mean just being a low-cost producer but being competitive in activities that lead to long-term income growth, as income and wages rise" – Lall (2001).

? "Competitiveness implies elements of productivity, efficiency and profitability. But it is not an end in itself or a target. It is a powerful means to achieve rising living standards and increasing social welfare – a tool for achieving targets. Globally, by increasing productivity and efficiency in the context of international specialisation, competitiveness provides the basis for raising peoples' earnings in a non-inflationary way." – Competitiveness Advisory Group (First report) (1995).

? "Competitiveness should be seen as a basic means to raise the standard of living, provide jobs to the unemployed and eradicate poverty." - Competitiveness Advisory Group (Second report) (1995).

Given the diversity of thinking on the issue of competitiveness, it is not surprising that the academic debate on competitiveness has become so convoluted and emotional. There is also little sign of a consensus being reached on practical guidelines for policy makers. Furthermore, the connection between national and enterprise-level competitiveness still seems vague and there appear to be contradictory views on its policy implications (Wignaraja, 2003).

The difficulty in defining competitiveness is due to the various dimensions of the concept. Some definitions focus on the underlying sources of competitiveness. For example, competitiveness is defined as the ability to profitably create and deliver value through cost leadership or product differentiation. This definition implies that competitiveness is directly related to factors that influence a firm's cost and demand structure. Other definitions place greater emphasis on the indicators of competitiveness. For instance, competitiveness may be defined as the sustained ability to profitably gain and maintain market share. Much of the diversity of concepts and measures of competitiveness emanate from the variety of perspectives and objectives originating from the relevant research.

Wignaraja (2003: 15) conveniently distinguishes three distinct views on competitiveness:

? A **macroeconomic perspective** which deals with internal and external balance at country-level that focuses on real exchange rate management as the principle tool for competitiveness;

? A **business strategy perspective** which is concerned with rivalries between firms and countries and a limited role for public policies in fostering competitiveness;

? A **technology and innovation perspective** that emphasises innovation and learning at the enterprise and national-levels and active public policies for creating competitiveness.

The objective of this Chapter is not to criticise previous perspectives or to prescribe one over the other as the most appropriate in all circumstances, but to employ the evolution of competitiveness thought as described, as well as the different perspectives on the concept of competitiveness in order to develop a definition of competitiveness that can be used in this study.

As described in Chapter one, the focus of this study is on the agribusiness sector of South Africa. Activities included in this sector is the tertiary transformation of commodities into value added products, the supply of inputs to the primary and tertiary sectors, the retail and wholesale provision and the provision of services such as finance, insurance and technical advice. In doing so, the study is also concerned with the competitiveness of products, firms and industry segments. The possibility that some parts of a sector may be more competitive than others is recognised.

Four notions of competitiveness emerge as important in the context of agribusinesses operating for gains in the new globalise world economy, namely:

(i)   The ability to trade for gain by competing at both export and import levels under real world conditions such as uneven economic "playing fields", distorted economies and different regimes.

(ii)   The ability to sustain the gains achieved through the consistent mobilisation and attraction of scarce economic resources from other, less competitive economic endeavours, thus allowing it to reinvest, innovate, expand and perform in a sustainable and profitable manner.

(iii)   The ability to predict change correctly and act upon such predictions in an innovative manner to mobilise rents and returns.

(iv)   Competitiveness is not a clear theoretical economic notion but a business concept depending on profits, business strategies, corporate culture, etc., and also non-economic issues such as innovation, ethics and political stability. Economics has sometimes a too narrow scope on competitiveness. Competitiveness is a holistic viewpoint on the continuously ability of companies to exploit the market reality for gain. Therefore, a situation whereby government, for example, positions a particular firm to compete favourably must be accepted. However, such action may not be sustainable as markets will be distorted leading to inefficiencies and eventually uncompetitiveness.

Furthermore, a business that operates in a country where education, science and infrastructure is not upgraded continuously or social and political stability lacks, will not be able to compete in the long-term, despite having a mere perfect business strategy or making sufficient short-term profits. Competitiveness should thus not be defined in economic terms; however, the notion of sustainability clearly requires that competitiveness be contextualised by an economic framework to ensure a sustainable process.

From these four notions competitiveness will be defined as ***the ability of a sector, industry or firm to compete successfully in order to achieve sustainable growth within the global environment while earning at least the opportunity cost of returns on resources employed. To compete means to try to gain or win something (which can be any given strategy determined by the sector, industry or firm e.g. market share, increased rate on investment or increased profits, etc.) by defeating other competitors.*** For example, a competitive firm has the ability to continuously satisfy the consumer with a product of the right price, quality, packaging, etc. Such a firm therefore beats the competitors to the scarce Rand, Dollars, Pounds, etc. of the consumer.

Competitiveness is thus rather a dynamic and involved process, instead of an absolute state of affairs, and it can therefore only be assessed with in a relative sense. Moreover, the growth produced by competitive activities should be sustainable rather than short-lived. Short-term features such as opportunistic "price wars and cost cutting" will not sustain a competitive position.

Furthermore, from the definition it is clear that competitiveness must be link to a goal or outcome and can not be the goal or outcome *per se*. For example, if the goal is too continuously gain from trade (by selling locally and/or by selling globally), the tool or ability for achieving that goal on a sustainable manner relative to the other competitors will then be competitiveness.

Competitiveness is thus one of the most powerful concepts in modern economic thinking. Competitiveness does not only depend on the comparative advantage of the sector or the efficient use of the resource base (land, labour or capital) but it also depends on the ability to innovate and upgrade. The fact that competitiveness encompasses the economic consequences of non-economic issues, such as education, sciences, political stability and value systems is one of its key contribution to the classical economic theories (IMD, 2003).

In the next section, the relationship between competitive performance and confidence will be discussed. This relationship is important in analysing competitiveness. Changes in the global food and agribusiness sector have a direct effect on the confidence of managers and it usually influences their strategic approach to business decisions. Research shows that confidence is closely related to competitive performance (Jones & Hardy, 1990). This link between competitive performance and confidence is also prominent in both the World Competitiveness Yearbook prepared by the IMD and the Global Competitiveness Report prepared by the WEF, where qualitative survey data from business executives on their perception of the business environment in the countries in which they operate are afforded an important weight in the completion of competitiveness rankings (IMD, 2003; WEF, 2003).

2.4 THE RELATIONSHIP BETWEEN COMPETITIVE PERFORMANCE AND CONFIDENCE

2.4.1 The psychology of confidence

Certainly, the vast majority of elite performers cite confidence as a major feature of their success (Woods, 1998). Persons who are truly outstanding are confident. Confident people think about themselves and the action at hand differently from those who lack confidence. Confidence is a sense of assurance. It is derived from the Latin word *confidere,* which means to trust. To be confident is to have faith in someone or something. Self-confidence means to have self-assurance arising from a belief in one's own ability to achieve things. Vealey (1986) defines confidence as the belief or degree of certainty that individuals possess about their ability to be successful. Sport psychologists define self-confidence as the belief in your ability to successfully perform a desired behaviour. The desired behaviour might be scoring a goal in soccer, staying on an exercise regimen, recovering from a knee injury, serving an ace, or hitting a home run. The common factor is that you believe you will get the job done (Weinberg & Gould, 2003).

Kanter (2004) nails the definition of confidence as the "sweet spot" between arrogance and despair. Arrogance involves the failure to perceive any flaws; despair, the failure to acknowledge any strength. Business confidence is a belief, an assurance in the business environment, company personnel and in one's own abilities.

Thus, confidence is characterised by a high expectancy of success. It can assist individuals in arousing positive emotions, facilitate concentration, set goals, increase effort, focus on strategies and maintain momentum. In essence, confidence can influence affect, behaviour and cognition (the ABC of psychology).

An individual with feelings of confidence has good concentration skills and can attentively focus on the task at hand. Reactions are therefore quick, accurate and decisive. A further important feature of confidence is that of persistence. With high expectations of success, the competitor continues to persist despite initial problems and difficulties. In contrast to emotional feelings which accompany lack of confidence, the confident competitor experiences feelings of satisfaction and enjoyment. On the way up, success creates positive momentum. People who believe they are likely to win are also likely to put in the extra effort at difficult moments in order to ensure victory (Kanter, 2004).

What people think or say is critical to performance. Unfortunately, the conscious mind is not always an ally in this regard. We all spend vast amounts of time talking to ourselves, but most of the time we are not even aware of this internal dialogue, much less its contents. Nevertheless, thoughts directly affect feelings and therefore ultimately also actions. Inappropriate or misguided thinking usually leads to negative feelings and poor performance, just as appropriate or positive thinking leads to enabling feelings and good performance (Weinberg & Gould, 2003).

THOUGHTS ⟶ FEELINGS ⟶ BEHAVIOUR

Confidence is certainly mental, but it is not a mindset in the sense that it is always present. Confidence is a situational expectation – an expectation of a positive outcome. The expectation leads to all kinds of investments in making the outcome true. Because of confidence, people put in the effort. They invest financial and other resources. Instead of giving up, they stay in the game longer and therefore have more chances to succeed. Confidence is definitely a response to specific situations (Kanter, 2004). Success, whether achieved by a person, a company, a team or a country, breeds the confidence that it is possible to win again…and again…and again.

2.4.2 Confidence and competitive performance

"Confidence does not come from winning. Winning comes from confidence. Confidence comes from hard work."

- Vijay Singh (2005)

Vealey (2001:555) has developed a model of confidence and its relationship with performance that can be used in research and practice. In Figure 2.4 the model is illustrated.

The diamond shape in the centre of the model contains the core psychosocial constructs and processes that define confidence, fuel its existence and explain its mediating influence on performance. These include the confidence construct itself, the three domains representing sources of confidence (achievement, self-regulation and social climate) and the ABC (affect, behaviour, cognition) triangle, which is predicted to most directly influence performance.

Confidence is situated at the heart of the model; it is defined as the beliefs or degree of certainty in the ability to be successful. Confidence involves more than perceived competence. It is, rather, a perceived competence to do something. That is, confidence like competitiveness is linked to a goal, or an outcome. However, where competitiveness

is the ability to achieve that goal; confidence is the belief or sense of assurance to achieve the goal, and thus influence competitiveness directly.
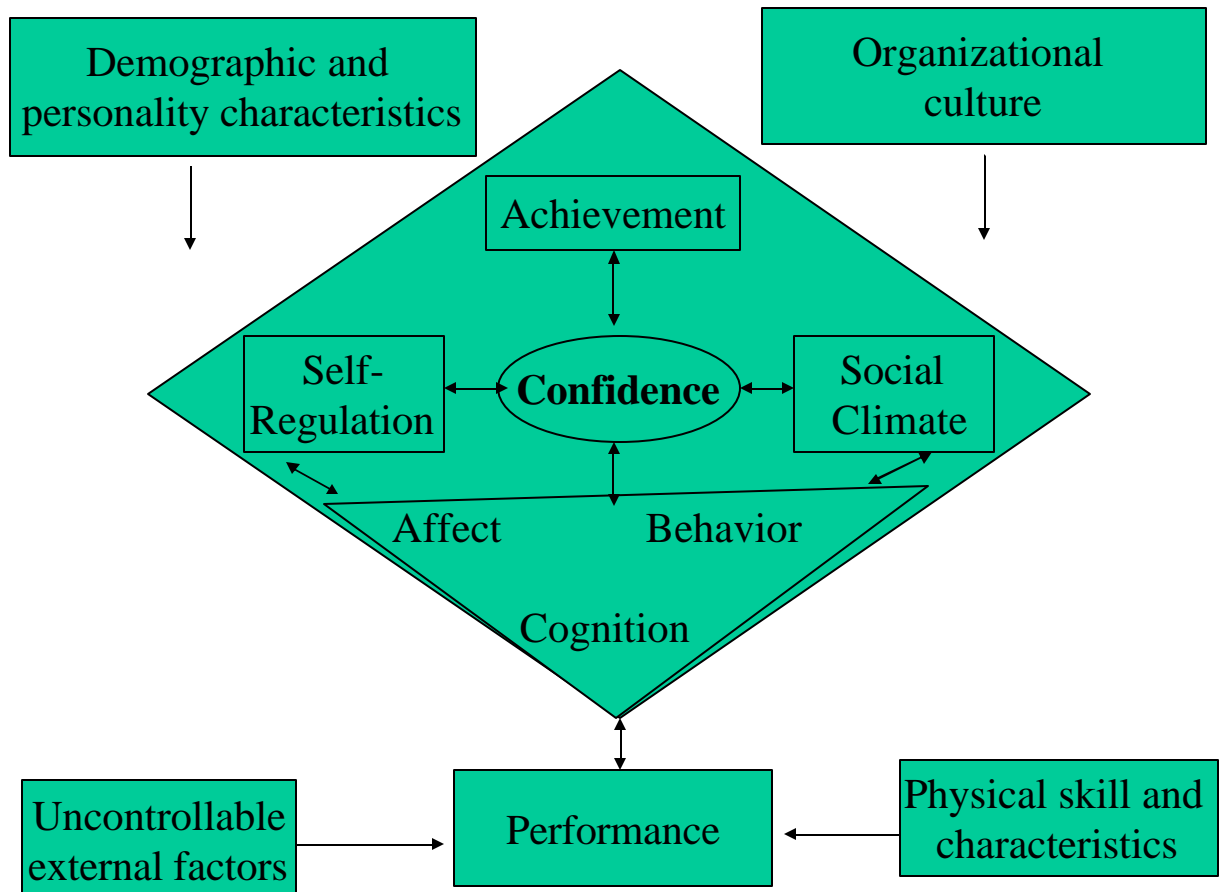
Figure 2.4: The relationship between confidence and performance
Source: Vealey (2001)

The **ABC triangle** shown directly below confidence in the model contains the ABC's of psychology: affect, behaviour and cognition. That is, the main focus in psychology is on how people feel, act and think. In the social-cognitive perspective of psychology, the ABC is termed the "domains of personal adjustment," or the feeling (affect), doing (behaviour) and thinking (cognition) of human functioning (Maddux & Lewis, 1995). The ABC is so interactive, or reciprocally determined (Bandura, 1978), that they are

illustrated together within a triangle in Figure 2.4 to emphasise their continuous reciprocal interactions.

As a primary mediator of the ABC, confidence may be considered the "mental modifier", meaning that confidence modifies how people feel about, respond to, and think about everything that happens to them in life. This is the most critical link in the model because it represents the importance of understanding why and how confidence influences performance through its effect on how people feel, think and act.

Firstly, confidence arouses positive emotions ("A"), whereas a lack of confidence relates to negative effects such as anxiety, depression, and dissatisfaction (Martens, Vealey & Burton, 1990; Vealey & Greenleaf, 1998). Strong beliefs about personal competence and ability produce adaptive emotional states, whereas a lack of confidence (or beliefs about incompetence and lack of ability) are emotionally painful and lead to ineffective actions and thoughts (Maddux & Lewis, 1995). Interestingly, researchers have demonstrated that higher levels of confidence are associated with more positive perceptions of arousal and anxiety (Jones, Hanton & Swain, 1994; Jones & Swain, 1995). Thus, confidence seems not only to enhance positive emotions, but also to provide a productive belief system in which emotions generally viewed as negative (e.g. anxiety) are reframed to be viewed as necessary and facilitative to performance.

Secondly, confidence has been linked to productive achievement behaviours ("B") such as effort and persistence (Weinberg, Yukelson & Jackson, 1980). A strong sense of confidence motivates people to set challenging goals, expand maximal effort and persist in the face of obstacles in an attempt to reach these goals and, as a result of this proactive behaviours, accomplish more than is expected (Bandura, 1986; Maddux & Lewis, 1995).

Thirdly, confident individuals are more skilled and efficient in using cognitive resources ("C") that are necessary for success. Confident persons have more productive attributional patterns, attentional skills, goal orientations, self-perceptions of success, as well as ability and coping strategies, as compared to less confident persons (Vealey.

1986). Confident individuals remain task-diagnostic by focusing on process solutions to problems in the face of obstacles, whereas less confident individuals are more likely to become self-diagnostic and focus on their perceived inadequacies (Weinberg & Gould, 2003). Remaining cognitively efficient via productive thinking is an essential skill for success in a competitive environment, thus emphasising the importance of confidence as a mental modifier of this cognitive efficiency.

Along with confidence and the ABC triangle, the other three constructs in the central diamond portion of the model represent source domains, or categories of factors that develop and/or enhance confidence in people. **Achievement** is used to represent the source of confidence based on people's past accomplishments. **Self-regulation** is the second source domain for confidence. It emphasises that the human ability to use self-reflection in order to plan and regulate behaviour in pursuit of personal and business goals is paramount to developing confidence. Vealey & Greenleaf (1998) found that physical and mental preparation were important sources of confidence, as well as positive self-perceptions about one's physical self.

The third source domain for confidence is the **social climate**, the myriad social processes that are typical to achievement situations. Social climate factors that have emerged as salient sources of confidence include social support, vicarious experience or available models, feelings of comfort and acclimation to the competitive environment, and an intuitive feeling of situational favourableness (Vealey & Greenleaf, 1998).

All constructs in the central processing part of the confidence model (represented inside the diamond shape) interact continuously to influence performance. The three source domains were shown to directly influence levels of confidence. Secondary arrows acknowledge the direct relationships between self-regulation and the ABC triangle and the social climate and the ABC triangle. This means that, although the focus of the model is on the determinants and consequences of confidence, self-regulatory forces and social climate factors also impact directly on how people think, feel and respond in the

competitive environment. The two-way arrows emphasise that all processes in the core of the model interact in a reciprocal manner.

The core of the model illustrates that, from a psychosocial perspective, the influence of confidence on performance is mediated by the ABC triangle. Specifically, performance is influenced by the thoughts, emotions and behaviour of people. Performance is ultimately shaped by the goals that people set, the behavioural choices they make, the effort they engage in order to pursue their goals and the persistence they demonstrate when obstacles arise. Performance is also shaped by the ability of people to elicit productive emotions and thoughts, as well as their ability to manage and cope with counterproductive emotions and thoughts.

As seen at the bottom of the model, performance is also influenced by the **physical skill and characteristics** of the persons as well as **uncontrollable external factors** (e.g. weather, luck, opponents). It is important to acknowledge these influences to remind and ensure individuals and business that they cannot control all things that influence their performance.

Organisational culture remains an important factor in the overall model of confidence. Organisational culture represents the structural aspects that influence the ways in which confidence is developed and manifested in people.

The final box in the model represents all the **personality characteristics**, attitudes and values of individuals, as well as **demographic characteristics** such as age, experience, gender and ethnicity. These characteristics are predicted to influence the development and manifestation of confidence in individuals as well as the sources that they use to gain confidence.

2.5 CONCLUSION

Compete or perish! That is the harsh reality of today's world. We're living in the midst of a global explosion of competition. In every profession, in every area of life, the competition is getting stiffer and fiercer. The number of competitors has increased faster than the number of jobs, resources and opportunities. The pressure is on. To become a winner today is an ever more demanding task – it demands more talent, more guts, more preparation and more "savvy".

In this chapter the evolution of competitiveness theory was described, competitiveness was defined and the relationship between competitive performance and confidence was discussed. The next chapter will build on this theoretical framework to develop an analytical framework to analyse the competitiveness of the agribusiness sector in South Africa.

CHAPTER THREE

MEASURING AND ANALYSING COMPETITIVENESS IN THE AGRIBUSINESS SECTOR: METHODOLOGICAL AND ANALYTICAL FRAMEWORK

3.1 INTRODUCTION

The globalisation of business activities and trade liberalisation has given rise to the current drive by business and government to assess, understand and improve the international competitiveness of firms, sectors and industries. A more open economy in a world focused on global markets for products and global sources of inputs increases the need for the agribusiness sector in South Africa to be internationally competitive. The sector can only provide increased incomes for its participants and enhance its contribution to national economic growth if it improves its competitiveness.

The main objective of this Chapter is to develop a framework for measuring and analysing the competitiveness of the agribusiness sector in South Africa. The analysis of competitiveness is concerned with providing answers to classical questions of economics – what determines investment, what determines firm success and what represents optimal government policy (Pitts & Lagnevik, 1997). Abbott & Bredahl (1994) states that the analysis of competitiveness seeks to address trade policy questions within the distorted world in which we live, by replacing comparative advantage and relegating it to the status of a theoretical concept of little practical value.

Three aspects are important when developing a framework for analysing a sector's competitiveness: Firstly, the current and past competitiveness status of the sector must be determined. The second aspect is to determine the key success factors that established competitive advantage. Constraints that impact negatively on competitiveness must also

be identified. Thirdly, the aspect of the sustainability of the sector's competitiveness status must be investigated.

Many methods have been developed and used by researchers to measure and analyse competitiveness. In this chapter the most widely used measures of competitiveness will be discussed. A framework will then be developed to analyse the competitiveness of the agribusinesses sector in South Africa.

3.2 MEASURES OF COMPETITVENESS

Researchers have mainly used two scientific approaches to measure and analyse competitiveness, namely models and indicators. Models are complex and are usually custom-build to answer specific questions. Models require a relatively large investment in data collection and analysis. As a result, they are appropriate primarily for academic research or high-stake investment decisions and policy choices. It is also generally appropriate to employ specialist staff, as new developments in modelling methods are constantly being introduced.

The main alternative to models is index-number indicators, designed to measure some change over time or comparison across industries. Like the Consumer Price Index of inflation, such indicators do not pretend to simulate the economy itself - they serve as thermometers or barometers, not weather forecasters (Masters, 1995).

One important aspect of competitiveness is that it is a relative measure. There must always be a comparison with a base value (Frohberg & Hartman, 1997). If, for example, market share is being assessed, it must concern market size. If competitiveness in factor markets is being analysed, the relation is to the value a factor would have in another production process.

The quality of the results obtained with these indicators depends to a considerable extent on the quality of the data available. Although this is common to all analyses, it affects

some more than others. The quality, type, and amount of data required also vary between the measures - the choice of the method to be used is therefore often dictated by data availability.

Measures of competitiveness may also differ with respect to the level of investigation. Table 3.1 provides an overview. Studies can be carried out for various levels of product aggregation: across the entire economy, a specific sector, or for a single product (or aggregate of products). Another differentiation of competitiveness exists in the spatial dimension of the analysis. Studies can be carried out for a firm, for a entire country or regions within a country.   Since it is a relative measure, the competitiveness of enterprises or regions within a country, or between countries could be compared (Frohberg & Hartman, 1997).

The indicator used does not necessarily always reveal the spatial extension and the level of product aggregation of a given analysis.   A large number of analyses of competitiveness evaluate the performance of a sector either by using an aggregate of all the outputs of this sector, or by looking at its most important commodities.

Table 3.1: Analyses of competitiveness according to level of product aggregation and spatial extension

Product aggregation	Spatial Extension		
		Regions within	
	Firms	a Country	Countries
Entire economy	No	No	Yes
Single sector	No	Yes	Yes
Single product	Yes	Yes	Yes

Source: Adapted from Frohberg & Hartman, 1997

In addition to the different levels of product aggregation and spatial extension at which the concept of competitiveness can be applied, past performance (ex-post), current or the potential of competitiveness (ex-ante) could be the focus of the analysis.

Buckley, Christopher & Prescott (1988) have made a useful distinction between different measures of competitiveness:

? **Performance measures** compare how well a country, sector or firm has done relative to its rivals.

? Measures of **competitive potential** consider the availability of factors that can deliver superior performance.

? Measures of **competitive process** are often qualitative by nature and seek to measure either the management process or how competitive potential is converted into competitive performance.

In section 3.2.1 and section 3.2.2 twelve different methods used to measure competitiveness will be discussed critically. In section 3.2.1 the predominant concern will be to review measures of competitive performance. In section 3.2.2 the focus will be on measurements of competitive process and potential, and in particular the Porter diamond (1990, 1998) and business confidence indexes will be discussed.

3.2.1 Measures of competitive performance

3.2.1.1 Internationally published competitiveness reports

The most well-known measure of international competitiveness used to be the Competitiveness Index produced annually in the World Competitiveness Report by two Swiss institutes, the World Economic Forum (WEF) and the International Institute for Management Development (IMD). This index was based upon a huge number of variables (378 in 1995). Many of these were subjective and impressionistic, drawing extensively upon comments from business executives. The two institutions separated their indices since 1996, using different (and fewer) variables and weights – both of which are now widely used and cited.

The two reports have different views on the concept of competitiveness. The IMD defines competitiveness as "the ability of a country to create added value and thus increase national wealth..." (IMD, 1996). This definition may imply that Gross Domestic Product (GDP) and productivity can be proxies for competitiveness, but the IMD argues that competitiveness cannot be reduced to the mere notions of GDP and productivity (IMD, 1996). In contrast, the WEF accepts GDP and/or productivity as proxies for competitiveness by defining competitiveness as "the ability of a national economy to achieve sustained high rates of economic growth, as measured by the annual change in gross domestic product per person" (WEF, 1996).

While their definitions of competitiveness differ, both institutes have selected nearly the same factors of competitiveness. The Global Competitiveness Report prepared by the WEF formulates an index of economic indicators correlated with medium- to long-term economic growth. The index combines data on a country's economic performance (trade, technological capacity, infrastructure, regulatory framework) – the Growth Competitiveness Index - with qualitative survey data from business executives on their perception of the business environment in the countries in which they operate – the Business Competitiveness Index (WEF, 1996).

The World Competitiveness Yearbook prepared by the IMD measures and compares how well countries are providing an environment for the firms operating within its borders. It also uses two types of data to capture quantifiable and qualitative information. It obtains statistical indicator data from international and regional organisations, private institutions, and national institutes. It also gathers, through an in-depth questionnaire, qualitative data from top executives and middle management, who are asked to evaluate the current and future competitiveness of the country in which they operate (IMD, 1996).

The two reports use different weights in their calculations. The IMD report contains both hard data, that are statistical indicators published by organisations, and soft data, which are survey data compiled from executives. Soft data may be volatile; therefore the IMD applies a one-third/two-thirds balance between hard and soft data. On the other hand, the

WEF applies quite different weights. According to the report, the four factors – openness, government, finance and labour – are given a weight of three; the two other factors – infrastructure and technology – are given a weight of two; the remaining two factors – management and civil institutions are given a weight of one. Hence, the weighting of factors is somewhat arbitrary.

Although the notion of national competitiveness scores is appealing, some cautionary comments on their construction and use are worth bearing in mind. Firstly, a great deal of subjectivity is built into the scores through the interview-based methodologies, and the weights given to the qualitative attributes are not disclosed. Secondly, the scope of the measures is so broad that the computation of competitiveness includes variables with no clear relationship to competitiveness, but merely a simple correlation (Nabi & Luthria, 2002).

Lall (2001: 10) criticises the two indices by stating that the underlying analytical framework is weak and suspect. The connection between the variables in terms of producing growth or structural competitiveness is unclear, often tendentious. Countries often receive high marks because they are good places for international investment: the underlying theory seems to be that liberal environments for business are the only criteria of good policy, and that free markets are always optimal. The possibility that markets may be deficient, and that interventions may actually promote competitiveness is ruled out by assumption; thus, interventionist governments (like Korea) are given low marks compared to more *laissez-faire* ones (like Hong Kong) simply because they are interventionist. The emphasis on current macroeconomic factors and perceptions also makes the index volatile, with rankings shifting significantly from one year to the next – this conflicts with most analysts' concept of structural factors underlying competitiveness. Lall (2001) concludes the critique regarding the two indices with the following: "whatever the indices capture, it is not an economically justifiable concept of competitiveness" (Lall, 2001).

Kaplan (2003: 75 - 88) examines the competitiveness indicators developed by the WEF and IMD, specifically in respect of South Africa. He concludes that neither the Global Competitiveness Report nor the World Competitiveness Yearbook provide a clear and persuasive guide as to South Africa's overall competitiveness ranking, nor how this has altered over time. The problem resides principally in the assessment of technological capacities and the contribution that technology makes to overall competitiveness. The IMD's and the WEF's approaches to technology diverge significantly, but both are inadequate. As a consequence, there is a substantial discrepancy between the two with regard to South Africa's current overall competitiveness ranking. "Neither individually, nor collectively, are these competitiveness indicators – as they are currently constituted – useful as a guide to policy" (Kaplan 2003).

In Table 3.2 the competitiveness rankings of the top ten countries as well as that of South Africa is compared between the IMD World Competitiveness Yearbook and the WEF Global Competitiveness Report for the years 2001, 2002, 2003 and 2004. From the Table it is clear that there are some major differences in the competitiveness rankings. For example: in the WEF Growth Competitiveness Index and Business Competitiveness Index, Finland receives the highest ranking of competitiveness in the world and this ranking has remained nearly constant the past four years. In the IMD competitiveness index Finland is ranked the eighth most competitive country in the world in 2004, dropping from a fifth place in 2001.

South Africa is ranked the 49th most competitive country in the world by the IMD in 2004. The WEF Growth Competitiveness Index ranked South Africa 41st and the WEF Business Competitiveness Index ranked South Africa 25th in the world in 2004.

Table 3.2: A comparison between competitiveness rankings of the IMD World Competitiveness Yearbook and the WEF Global Competitiveness Report

	2001	2002	2003	2004
IMD WORLD COMPETITIVENESS YEARBOOK				
USA	1	1	1	1
SINGAPORE	3	8	4	2
CANADA	9	7	6	3
AUSTRALIA	12	10	7	4
ICELAND	10	11	8	5
HONG KONG	4	13	10	6
DENMARK	15	6	5	7
FINLAND	5	3	3	8
LUXEMBOURG	2	2	2	9
SOUTH AFRICA	37	39	47	49
WEF GROWTH COMPETITIVENESS INDEX				
FINLAND	1	1	1	1
USA	2	2	2	2
SWEDEN	9	3	3	3
TAIWAN	7	6	5	4
DENMARK	14	4	4	5
NORWAY	6	8	9	6
SINGAPORE	4	7	6	7
SWITZERLAND	15	5	7	8
JAPAN	21	16	11	9
ICELAND	16	12	8	10
SOUTH AFRICA	34	34	42	41
WEF BUSINESS COMPETITIVENESS INDEX				
USA	2	1	2	1
FINLAND	1	2	1	2
GERMANY	4	4	5	3
SWEDEN	6	6	3	4
SWITZERLAND	5	5	7	5
UNITED KINGDOM	7	3	6	6
DENMARK	8	8	4	7
JAPAN	15	11	13	8
NETHERLANDS	3	7	9	9
SINGAPORE	9	9	8	10
SOUTH AFRICA	25	29	27	25

Source: WEF and IMD, 2004

3.2.1.2 Real exchange rate

In the literature of neoclassical economics, the real exchange rate (RER) is considered as a measure for competitiveness (Edwards, 1989; Lipschitz, 1979). Accordingly, the appreciation/depreciation of the real exchange rate of a particularly country shows the loss/gain in competitiveness of that country (Edwards, 1989). The equilibrium real

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exchange rate is used as a benchmark for determining whether the real exchange rate is appreciating or depreciating. Even though the RER in most cases is applied to the entire economy, it is increasingly also employed as a measure for specific sectors (Frohberg & Hartman, 1997).

The RER is defined as the ratio of the price index of tradable commodities to that of non-tradable inputs.

$$RER \quad = \quad p^T/p^{NT}$$

Where:

p^T =   price index of tradable commodities

p^{NT} =   price index of non-tradable inputs

The cost of producing a tradable good differs between countries, mainly because of the varying prices of non-tradable inputs used in the production of this commodity and, to a lesser extent, that of the tradable inputs. The latter cannot cause large divergence because the price differences between countries are only due to trade policies. Therefore, a relative increase in the cost of non-tradable inputs which is equivalent to an appreciation of the real exchange rate leads to higher production costs.

There are, in general, several problems associated with the real exchange rate as a measure of competitiveness (Minale, 2002). The problems are both at the conceptual and methodological level. At the conceptual level two problems can be identified. Firstly, measuring competitiveness as a relative price/cost narrows the definition of competitiveness. As argued in Chapter two, competitiveness of an economy is not just a function of its wages and prices (relative to other countries), but it is also greatly influenced by non-price factors (for example, delivery date, quality design etc.).

Secondly, the intuitive behind using the RER as a measure of competitiveness is applied with difficulty to developing countries, which have advanced countries as their trading

partners (Minale, 2002).   Implicit in the definition of RER is the assumption of the homogeneity of tradables in the domestic economy and tradables in the rest of the world (trading partner countries). The assumption that technology is without cost and available to all countries is also embedded in this definition.

The problems with these assumptions are the following: Technology is more costly and difficult to obtain in developing countries and tradables in developing countries (unprocessed primary products) are quite different from the tradables in the more developed trading countries (sophisticated and manufactured products).   Thus, an increase in the world price of tradables with respect to the domestic price of non-tradables does not indicate a shift of resources to the production of tradables in the economy of developing countries (Minale, 2002).

Development over the last decades suggests that changes in real exchange rates are in the short to medium term very often more influenced by capital movements and their impact on the nominal exchange rate rather than by changes in the basic conditions of the real economy (Frohberg & Hartman, 1997).   Thus, in order to establish a causal relation between changes in the real exchange rate and international competitiveness, information about the driving force behind the movement in the former is required.

3.2.1.3 Foreign Direct Investment

Foreign Direct Investment (FDI), a measure of foreign ownership of productive assets, such as factories, mines and land, is a reasonable measure of national competitiveness. The factors that make a country attractive for inward FDI are similar to those that determine its competitiveness (Nabi & Luthria, 2002). Countries compete for FDI flows. Increasing FDI can also be used as a measure of growing globalisation. Figure 3.1 shows the growing inflow of FDI in the 1990's, mainly in developed countries.

Most FDI inflows go to industrialised countries whilst Latin America and East Asia dominate amongst developing countries - as one would expect (Nabi & Luthria, 2002).

In 1997 nearly 71% of FDI in developing countries went to just nine nations, and of that over 30% was invested in China alone (Todaro, 2000)
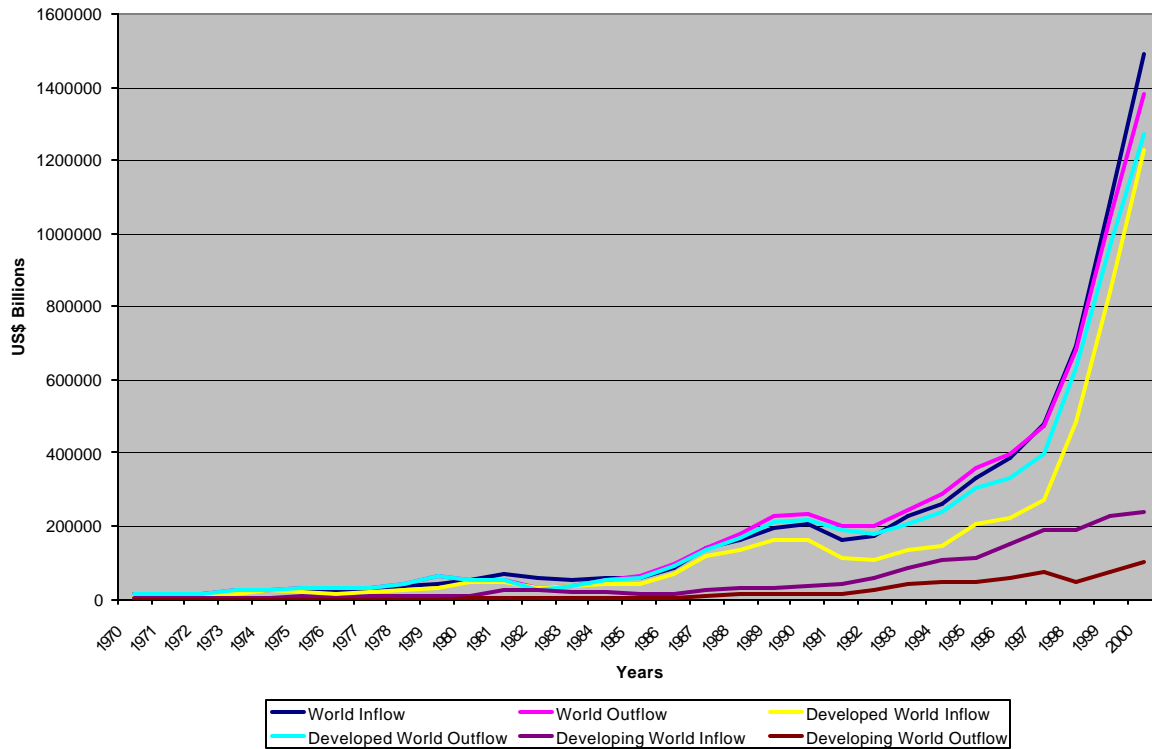
Figure 3.1: Trends in FDI in the world, developing countries and developed countries

Source: World Bank, 2000

While it is true that FDI flows into countries that possess the fundamentals of a competitive production structure, such as skilled labour, sound business laws, and good logistics, these are not the only factors affecting FDI inflows. For instance, the Republic of Korea, which possesses a sound production and innovation base, chose not to welcome FDI, unlike most other East Asian economies (Nabi & Luthria, 2002).

On the other hand, one way to overcome trade barriers is by investing in other countries. FDI can therefore lead to a partial substitution of exports. If a particular nation has a high

level of investment in foreign countries, this is also seen as an indicator of competitiveness.

Thus, one needs to differentiate with respect to FDI. If a large part of such investments is aimed primarily at opening up foreign markets that are perhaps not accessible via exports due to trade barriers, it mirrors the competitiveness of the donor country; otherwise it points to a competitive advantage of the country or region attracting FDI. Unfortunately, it is generally not easy to distinguish which of the two causes dominates.

A final cautionary note about using FDI flows as indicators of competitiveness: FDI proved far more resilient during the East Asia financial crisis of 1997-98, staying reasonably stable. The same was true during the Mexican crisis in 1994-95 and the Latin America debt crisis of the 1980's. These trends point to the relative inelasticity of FDI to measure change in competitiveness in the short run. However, FDI is a good indicator of long-term or structural competitiveness of a country (Nabi & Luthria, 2002).

3.2.1.4 The Growth-Share matrix

In the literature from business schools a number of techniques for analysis of competitiveness have been developed, one of the most important and widely used of which is the growth share matrix devised by the Boston Consulting Group (BCG) (Traill & Pitts, 1997). The essence of this technique is to develop a composite picture of a firm's businesses, by plotting each on a matrix according to its relative market share and its market growth rate.

The market growth rate on the vertical axis indicates the annual growth rate of the market in which the business operates. High growth markets are assumed to be more attractive because market gains are more easily obtained. In order to be able to distinguish between high and low market growth, 10% per annum is considered as the midpoint.

The growth rate of the market can also affect a firm's cash flow. A firm that operates within a rapidly growing market that wishes to maintain its market share will have to reinvest more in aspects such as added plant capacity and working capital than a firm that operates within a slowly growing or declining market. As market growth slows down, as it does at the end of the product life cycle, a business will usually generate cash well in excess of its needs (Fry & Killing, 1989)

On the horizontal axis, relative market share refers to the share of its market held by the business compared with that of its largest competitor. A relative market share of 0.1 means that the company's sales volume is only 10% of that of the market leader, while a figure of 10 would imply that its market share was 10 times that of its nearest competitor.

Relative market shares are drawn on a log scale so that equal distances on the graph represent equal percentage increases. The midpoint is 1.0; at this point the company's market share is equal to that of its largest competitor. High market shares imply a strong competitive position.

On the basis of these ideas and in terms of their ability to generate cash, the Boston Consulting Group classified products and businesses into one of four quadrants:

- **Cash cows** are characterised by high market shares and low market growth. Profitability should be good; both investment and cash requirements are low. Such products should have a good competitive position and generate resources to support other product-market combinations.

- **Stars** are market leaders in high growth markets. Profitability should be good but investment requirements are high. These products should be top priority and become the company's future cash cows.

- **Wild cats** (also called problem children or question marks) are products with low market shares in high-growth markets. Cash requirements are high. If the

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position of these products cannot be improved, cash will be absorbed continuously.

? **Dogs** are characterised by low market shares in low-growth markets. Profitability is generally absent and cash requirements high. Divesting is normally recommended for these products.

The competitive position of two or more companies can be assessed by classifying their products in this matrix. Clearly firms with a large share of their sales in the cash cows or stars categories are more competitive than those with a large share in the dog or wildcat categories.

The BCG matrix is widely used for strategic market planning within large companies, with many business units, but it has some weaknesses (Traill & Pitts, 1997; Fry & Killing, 1989):

? Some users criticise the model for being too mechanical and simplistic, incapable of capturing the real world complexities of a firm's competitive position and environment. The matrix also does not address the issue of the timing of investments.

? Market growth is not a completely valid measure of evaluating market attractiveness. Other factors, such as entry barriers, bargaining power and size of the market are also important.

? Market share is limited as a sole measure of competitive strength. Other elements, such as location, degree of vertical integration and capacity utilisation also have an influence.

? Definition of the market is not always simple, as many market segments can be identified for one type of product.

The BCG matrix has the additional advantage that it can be easily used as an indicator of competitive strength, not only at the level of an individual company but also for an industry as whole. By mapping all product-market combinations of competing companies, the competitive position of both domestic and export markets can be determined and compared with its competitors. Gellynck & Viaene (1993) have adapted this technique to enable them to analyse the competitiveness of a portfolio of products of a sector on foreign markets.

3.2.1.5 Export performance

A host of different indicators have been developed to measure competitiveness based on market and trade information. Although designed for international comparison, they may also be used to contrast the competitiveness of different regions. These measures are usually calculated for single products, an aggregate of products or commodity chains. Most of these indicators are based on trade rather than on domestic market information. Although this is not without problems, one advantage of using trade data is that demand and supply responses are considered simultaneously. An additional advantage of using trade data is that the costs of marketing and transport to and from the port of entry are also taken into account.

As already mentioned above, competitiveness is a relative measure. Thus, indicators based on absolute production and market share give little information on the competitive position of a product, sector, or supply chain in an economy. Indicators that compare one sector relative to others should be considered instead.

Success in export markets, measured by rising market shares, is an indicator of an economy's level of global integration (Nabi & Luthria, 2002). However, success in export markets needs to be interpreted carefully. For instance, the loss of some market shares in trade may not signify loss of overall competitiveness if there is a rising share of other products, signalling an upward movement in the value chain. A proper picture of

competitiveness requires specifying the relevant market shares, the cause of changes in shares, and the changes that are desirable for national welfare.

A useful extension of the simple export market share indicator is market positioning. In a matrix of share of a product in world trade and share of exports in world trade of the specific product, market position relates product-level market shares to the dynamism of exported products in world trade in an attempt to indicate how a country is positioned for growth in the world markets (Table 3.3).

A country's firms and industries are considered to be "competitive" in products in which their market shares are on the increase. An export product is considered "dynamic" in world trade if its market share is growing faster than the average for all products.

The ideal market position is to have the highest share of exports as "rising stars", indicating that the country is gaining market share in fast-growing products. "Lost opportunity", the loss of market share in dynamic products, is the least desirable. "Falling stars" are also undesirable, although less so than lost opportunity, since market shares are rising, even if not in dynamic products. Finally, "retreat" may be undesirable, or it may be desirable if the movement is away from stagnant products and towards growth in dynamic products. The rationale for applying this matrix approach is that competitive structures are difficult to change quickly, and that the ability to adapt is unevenly distributed.

Table 3.3: Matrix of market positioning

	Share of product in world trade	
Share of country's export in world trade	*Rising* *(Dynamic)*	*Falling* *(Stagnant)*
Rising *(Competitive)*	Rising stars	Falling stars
Falling *(non-competitive)*	Lost opportunity	Retreat

Source: Nabi & Luthria, 2002

3.2.1.6 Unit labour costs

Unit labour cost – the cost of the labour input required to produce one unit of output or the ratio of hourly compensation to labour productivity – can be another indicator of competitiveness. As productivity rises, the labour input needed to produce a unit of output falls. An increase in productivity can offset an increase in compensation per hour and its effect on unit labour costs. Note for instance that Basel, Switzerland, with one of the highest wage rates in the world, has one of the lowest unit labour costs in the industrial world because of very high labour productivity (Nabi & Luthria, 2002).

To be able to compare across countries, unit labour costs need to be converted using a common denominator, such as the exchange rate. The variables required to calculate unit labour cost – wages, product prices, output and exchange rates – embody both the micro and macro elements of the economy. However, calculating unit labour costs is far from easy given the sensitivities associated with obtaining accurate wage information and the difficulty of finding comparable baskets of goods across nations. Hence, it is nearly impossible to get accurate unit labour costs for most developing countries.

Furthermore, competitiveness based on low labour cost does not last very long. History shows that successful nations have a tendency to close the labour cost gap relatively quickly with their competitors. For example, in 1980, the total labour cost in manufacturing was US$5.52 in Ireland and US$6.03 in Japan. In 2004, it reached US$21.02 and US$21.54 respectively. The same trend is likely to occur in countries in Central Europe that show high growth rates. Within the next decade, these nations will probably see their labour costs aligning with their neighbour countries resulting in the development of a competitive edge based on other factors (IMD, 2005).

3.2.1.7 Balassa's Revealed Comparative Advantage method

The concept of "Revealed Comparative Advantage" is widely used in practice to determine a country's weak and strong sectors. Although Liesner (1958) was the first to utilise an index of Revealed Comparative Advantage, the most frequently used measure in this respect is called the "Balassa index", after its refinement and popularisation by Balassa (1965, 1989).

Balassa's (1965) development of the 'Revealed Comparative Advantage' model and its subsequent extension (Balassa, 1977) to encompass a 'stage' approach to industrialisation was a major innovation.

The difficulty of measuring comparative advantage itself, led Bela Balassa (1965) to investigate trade patterns directly, without reference to underlying resources, productivity, subsidies or prices. For a particular country, the revealed comparative advantage in a product is defined as the ratio of the share of that product in world trade. If this index takes a value greater than unity, the country is considered to have a revealed comparative advantage in the product while a value below unity indicates a comparative disadvantage.

Balassa (1965) argued that revealed comparative advantage (or competitive advantage) could be indicated by the trade performance of individual commodities and countries in the sense that the commodity pattern of trade reflects relative market costs as well as differences in non-price competitive factors, such as government policies.

Based on empirical studies, Balassa (1977) concluded that inter-country differences in the structure of exports are in large part explained by differences in physical and human capital endowments. His results lend support to the 'stages' approach to comparative advantage, according to which the structure of exports changes with accumulation of physical and human capital.

Balassa's Revealed Comparative Advantage (RCA) method, an ex-post measure of competitiveness, compares a country's share of the world market in one commodity relative to its share of all traded goods. Given a group of reference countries, the Balassa index basically measure normalized export shares, where the normalisation is with respect to the exports of the same industry in the group of reference countries.   In particular, if X_{Aj} is country A's export value of industry j, X_{refj} is industry j's export value for the group of reference countries, and we define $X_i = ?_j X_{ij}$ for i = A, ref, then country A's Balassa index of revealed comparative advantage for industry j, RCA_{Aj}, equals:

$$RCA_{Aj} = X_{Aj}/X_A \Big/ X_{refj}/X_{ref} \qquad\qquad ....1$$

If RCA_{Aj} exceeds 1 country A is said to have a comparative advantage in industry j, since this industry is more important for country A's exports than for the exports of the reference countries.

The RCA is often multiplied by 100 for ease of presentation. An index of 110 for a particular industry in a particular country would then mean that its share of the world market was 10% higher than its share in total exports and that the country had a comparative advantage in that industry.   Figures below 100 indicate comparative disadvantage.

The RCA measure can therefore identify sectors for which an individual country has a comparative advantage and a comparative disadvantage. It measures relative success in exporting and (despite its name) is not dependent on any theory regarding inter-industry trade, factor endowments, the existence, or otherwise absence, of free trade or perfect competition (Pitts & Lagnevik, 1997). RCA's are basic measures of success and failure and it can provide useful data for the testing of hypotheses in these other areas.

The use of the Balassa index for identifying a country's weak and strong sectors is widespread, both among academic scholars and policy makers (Hinloopen & Marrewijk, 2000). Balassa (1977) himself used these indices to measure changing competitiveness of the United States economy in research intensive industries. Michael Porter (1990) used a Balassa index exceeding one to identify a country's strong sectors in his influential book "The Competitive Advantage of Nations". Other empirical examples where the Balassa index is used, include Ariovich (1979), Reza (1983), Yeats (1985), Peterson (1988), Crafts (1989), Amiti (1999), Valentine & Krasnik, (2000), Esterhuizen & Van Rooyen (1999), Esterhuizen & Van Rooyen (2001), Agricultural Business Chamber (2001), Van Rooyen, Esterhuizen & Doyer, (2000), ISMEA, (1999), Pitts, O'Connell & McCarthy, (2001), Ferto & Hubbard, (2001).

There have also been some detailed discussions and analyses on the Balassa index (see Kunimoto [1977], Hillman [1980], Bowen [1983, 1985, 1986], Balance, Forstner and Murray [1985, 1986, 1987], Vollrath [1991], Bowen et al [1998], Hinloopen & Van Marrewijk [2000]).

RCA data can therefore be used as a measure of competitive performance as defined by Buckley, Christopher & Prescott (1988). From the perspective of this study, this data can identify successful and unsuccessful agro-food and fibre industries in South Africa. The only data required are trade statistics. The measure can be calculated for a whole sector such as food and drink, or for relatively small sub-sectors such as milk, yoghurt, sausages and maize meal. Trade data is available at a highly disaggregated level and it is usually possible to aggregate trade data into meaningful industry sectors.

An RCA index, being based on trade data, can be calculated yearly, and trends in competitiveness in a sector or industry can be identified. Although the focus is usually on performance within individual countries, by aggregating the data the technique can also be used to assess the competitiveness of sectors within trade blocs. The absence of appropriate trade data, in general, precludes the use of RCA at regional (sub-national) level.

The RCA index differs from a market share indicator in that the RCA index examines relative or comparative performance of an industry as compared to other industries in the same country, whereas the market share indicator looks at the absolute performance of an industry or company *vis-à-vis* its competitors.

Following analyses of international competitiveness in agriculture (Vollrath, 1987 & 1989) and in view of the open world economy, Volrath (1991) offered three alternative specifications of Revealed Comparative Advantage. The first of these measures is the Relative Trade Advantage (RTA), which accounts for imports as well as exports. It is calculated as the difference between relative export advantage (RXA), which equates to the Balassa index, and its counterpart, relative import advantage (RMA).

RTA is formulated as:

$$RTA_{iv} = RXA_{iv} - RMA_{iv} \qquad \qquad \dots 2$$

Where for $(n + v)$ countries and $(m + i)$ products,

$$RXA_{iv} = \left[X_{iv} / \sum_{n=1}^{u} X_{in} \right] / \left[\sum_{m=1}^{h} X_{mv} / \sum_{m=1}^{h} \sum_{n=1}^{u} X_{mn} \right] \qquad \dots 3$$

$$RMA_{iv} = \left[M_{iv} / \sum_{n=1}^{u} M_{in} \right] / \left[\sum_{m=1}^{h} M_{mv} / \sum_{m=1}^{h} \sum_{n=1}^{u} M_{mn} \right] \qquad \dots 4$$

where X and M refer to exports and imports, respectively. The numerator in equations [3] and [4] is equal to a country's export (imports) of a specific product category relative to the exports (imports) of this product from all countries except for the country in consideration. The denominator reveals the exports (imports) of all products except for the commodity in consideration from the respective country as a percentage of all other countries' exports (imports) of all other products. The level of these indicators represents the degree of revealed export competitiveness/import penetration.

While the calculations of indices RXA and RMA are exclusively based on either export or import values, the RTA considers both export and import activities. This seems to be important in view of trade theory and globalisation trends and due to the growth in intra-industry and/or entrepot trade (ISMEA, 1999).

The importance of using both exports and imports simultaneously in calculating an indicator of competitiveness may be illustrated by a simple example. Let us assume the RXA for product h in country j reveals a value of 3, thus indicating a high level of competitiveness for this product. However, the RTA value for the same commodity and country amounts to –1, thereby pointing to a lack of competitiveness. What may have caused these contradictory results? The answer is rather straightforward: intra-industry trade makes up the difference. Although exports have reached a sizeable share, imports of this commodity must have been even larger. Therefore, in considering both exports and imports the RTA is a more comprehensive and superior measure of competitiveness.

The RTA indicator implicitly weighs the revealed competitive advantage by calculating the importance of relative export and relative import competitive advantages. Hence, it is not dominated by extremely small export or import values of the commodity considered.

Vollrath's second measure is simply the logarithm of the relative export advantage (lnRXA).

The third measure is revealed competitiveness (RC), defined as:

$$RC \quad = \quad lnRXA \quad - \quad lnRMA \qquad \ldots 5$$

The advantage of expressing the latter two indices in logarithmic form is that they become symmetric through the origin. Positive (negative) values of RTA, lnRXA and RC reveal a competitive advantage (disadvantage).

When comparing a cross-section of RTA indicators, different aspects of the formula can change, and with it, the interpretation of the RTA indicators. Therefore, care should be exercised when interpreting RTA's. Table 3.4 gives some indication of how to interpret different cases of the RTA index. It is important to note that there are three aspects of the formula that can change when calculating the RTA indicators. Firstly, there is the product or product group; secondly, there is the country or group of countries for which one is estimating competitive advantage; and thirdly, there is the group of reference countries.

Table 3.4: A framework for interpreting different cases of the RTA index

Case	Country or group of countries to be analyse	Commodity, product or commodity group	Group of reference countries	Interpretation
1	Same	Different	Same	RTA indicators can be compared between products/commodities. The higher the value of the indicator, the greater the competitive advantages the product has over the other products in the country that has been analysed.
2	Same	Same	Different	A specific country's competitiveness for a specific product or commodity is compared to different reference countries. A comparison of the RTA indicator rank enables one to determine the relative importance of the traded commodity with different trading partners.
3	Different	Same	Same	Special caution needs to be exercised in this case. The index is affected by the size of the economy. Trends should preferably be used to compare the competitiveness between the countries

Source: Based on Valentine & Krasnik (2000)

Consider case 1 in Table 3.4. A comparison of differences in the RTA indicators for different commodities or products traded for the same country with the same reference countries can make use of the real value of the RTA indicator. The higher the value of the indicator, the greater the competitive advantage the product have over other products. Consider case 2 in Table 3.4. In this case a specific country's competitiveness for a specific product or commodity is compared against different reference countries. A comparison of the RTA indicator rank enables one to determine the relative importance of the traded commodity to different trading partners.

In case 3 of Table 3.4, special care needs to be exercised as different size economies will affect the absolute value of the RTA indicator. However, by using a trend analysis, the competitiveness of different countries can be compared.

A limitation of RTA analysis is that it does not explain how a country or region acquired its international market share and competitiveness status. Market share may well be attained by means of high export subsidies paid by governments (such as is for EU, USA, etc.) or protection (i.e. "uneven playing fields"). The sustainability of a competitive position may thus be in question, especially in view of the ongoing global movement to "free-up" markets and reduce subsidies and protection.

3.2.1.8 Production cost comparisons

Production costs and/or gross margins are often compared across farms to indicate which enterprise has a competitive advantage. Gross margins are obtained by subtracting costs of variable inputs from gross revenue. Since these calculations can be carried out only for a single commodity, such analyses are done at the product level. In general, data of existing enterprises are taken. Sometimes information obtained from individual farms, but averaged over a region or even a country, is also used. The underlying data determine the spatial extent of the analysis, i.e. whether enterprises at a regional or country level, or whether different types of farms are compared.

To allow for ease of comparison, it is common to normalise gross margins, e.g. with the value of sales or labour costs. This indicator can provide rather detailed insights into the reasons why enterprises across regions or countries are or are not competitive in a particular good. This is because the index is based on a detailed breakdown of the various cost items of production and, hence, offers a comparison at this level. Other measures do not reveal such details. This method, however, requires the data employed for comparison to be of the same or at least quite similar quality. This is a strong requirement, which is frequently not met.

Another major limitation is that gross margins do not offer any insight into whether quasi-fixed factors could be paid in accordance to what they would earn were they used in the production of other commodities. Moreover, if quasi-fixed factors were to be used in producing one commodity only, it could be disregarded completely; this, however, is rarely the case. Most quasi-fixed factors are rather immobile concerning other sectors of the economy, but can be employed in producing several agricultural goods. If it is possible to obtain shadow prices to the quasi-fixed inputs used in the production of the good analysed, and to include them in the calculation of production costs, some of the problems could be solved (Frohberg & Hartman, 1997).

Another problem using accounting methods relates to the question of how representative the results will be. Usually the calculations are carried out for specific enterprises. If used for regional or country comparison, care should be taken to find firms that are representative of the corresponding spatial entity. This requires detailed information on the most important characteristics of the enterprises concerning competitiveness, as well as an appropriate sampling method.

For international comparison, the omission of distribution and marketing costs in this method is a disadvantage. Where international competitiveness is determined, the costs of transporting the commodity from the point of production to the port of export or from the port of import to the point of domestic use should not be disregarded. For bulky products, or spatially large and land-logged countries with less developed transportation

systems, such costs can seriously impede or even become prohibitive to trade [see for example the Rwanda Case study (Esterhuizen & Van Rooyen, 2001)].

Additional problems arise if this method is used for considering competitiveness under different policy scenarios. This is a result of the assumption that production can be represented by a Leontief function, which does not allow substitution between inputs. Furthermore, accounting methods neglect any repercussions for prices caused by changes in demand for inputs, and these methods also do not represent similar interdependencies on output markets (equilibrium conditions are not implied). A policy change, however, will affect outputs as well as variable inputs, and the value of quasi-fixed factors. Subjective judgement is required as to whether these omissions affect the results and, if so, by how much (Frohberg & Hartman, 1997).

If conclusions about competitiveness need to be drawn, the production cost comparison has to be used with some care. It is likely that too much can be read into these figures, because the limitations of the approach are not sufficiently taken into consideration.

3.2.2 Measuring competitive potential and process

The methods described in the previous section are only the starting point in any analysis of competitiveness. These methods help to define which sectors are competitive and which are not. They quantify, but do not explain why. The measures of competitiveness discussed in this section seek to answer that question.

3.2.2.1 Domestic Resource Costs

Domestic Resource Costs (DRC) is calculated to measure the comparative advantage of different policy options. DRC, as well as several other important indicators of protection, comparative advantage and social profitability can be illustrated using the framework of Policy Analysis Matrix (PAM) originally developed by Monke and Pearson (1989).

The PAM is a product of two accounting identities: profits are defined as a difference between revenues and costs measured in either private or social terms. The second identity measures the effect of distortions as differences between observed values and social values.

Table 3.5: Policy Analysis Matrix

	Revenue	Tradable Input Costs	Domestic Factor Costs	Profits
Private prices	A	B	C	D
Social prices	E	F	G	H
Transfers	I = A-E	J = F-B	K = G-C	L

  Source: Monke and Pearson (1989)

The PAM matrix gives three absolute measures:

-      Private profitability   D = A – B – C
-      Social profitability   H = E – F – G
-      Net transfer   L = I + J + K

Indicators that are used to compare the extent of policy transfers or policy incentives and indicators that are used to compare relative efficiency or comparative advantage between agricultural commodities are summarised in Table 3.6 below.

Table 3.6: Economic indicators derived from the PAM

NPC	Nominal protection coefficient	(A/E) – 1
EPC	Effective protection coefficient	[(A – B)/(E – F)] – 1
DRC	Domestic resource cost	G/(E – F)
SCB	Social cost benefit ratio	(F + G)/E
PPR	Private profitability ratio	A – B – C/A
PCR	Private resource cost	C/A – B

Source: Monke and Pearson (1989)

DRC equals the real domestic resource cost required to save or earn a unit of foreign exchange. It can be interpreted as the shadow value of domestic non-tradable factors

necessary in producing a traded good per unit of tradable value added. If the domestic value added is greater than the opportunity costs of the used domestic resources (DRC < 1), the considered alternative will lead to growth. Otherwise (DRC > 1) the policy is an inefficient alternative (Tweeten, 1992, Masters, 1995). The DRC is calculated as:

$$DRC_i \quad = \quad [\; ? \; a_{ij} \, V_j^s \;] \; / \; [P_i^s \; - \; ? \; a_{ij} \, P_j^s \;] \qquad\qquad \ldots 1$$

$$\sum_{j=k+1}^{n} \qquad\qquad \sum_{j=1}^{k}$$

Where:

a_{ij}, 1 to k   are technical coefficients for traded inputs

a_{ij}, k+1 to n   are technical coefficients for domestic resources

V_j^s is shadow price for domestic resources

P_s^s is border price of traded output

P_j^s is border price of traded input

The DRC is constructed from average budget data based on observed (average) input-output coefficients and imputed shadow prices for the non-traded inputs. Usually, the latter reflect the opportunity costs per unit of domestic labour, of land, as well as fixed capital such as drainage and irrigation. Since the input-output coefficients are assumed constant over different policy scenarios, and because imputed shadow prices for each commodity are calculated separately, the indicators ignore any kind of substitution and other cross-price effects.

In addition, the DRC has been criticised for the biased results it usually offers. Masters (1995) shows that it is often those alternatives, which rely on a high level of non-tradable inputs, that are shown inefficiently. The bias is especially pronounced if the various options to be compared include very divergent combinations of traded and or non-tradable components. Finally, it is not easy to gather the necessary input-output coefficients needed for the analysis.

A major advantage of the DRC is the fact that interpretation of the results is intuitive. A production of a good is not competitive when production under world market conditions generates less income for domestic resources such as labour, capital and others, than the opportunity costs of those resources. In this case the DRC is larger than one.

The inverse of the DRC, called competitiveness coefficient, is also used quite often. It is intuitively more appealing than the DRC, since it reveals the highest values for those policy alternatives which indicate largest returns to fixed resources, and thus presumably have a competitive advantage (Tweeten, 1992).

3.2.2.2 Mathematical models

Simulation models are comprehensive tools for measuring competitiveness. When employed for this purpose, such models must be robust against policy alterations, since policy changes are very likely to induce quite a number of changes in the way the goods investigated are produced in the economy or sector. Therefore, great emphasis has to be placed on the structure of the model and its parameters. In other words, the system should include parameters that do not alter due to new policies. This characteristic, sometimes referred to as external robustness, is highly demanding on the quality of the model. How well the model reflects this robustness clearly also depends on the divergence of the new policies from those implemented in the past (Frohberg & Hartman, 1997).

Not all model types are capable of having such a property. Those econometric models that fall into the class of reduced-form models are less suitable for such analyses, because they include the production and preference structures in a compact and implicit manner that is likely to lack the details necessary to achieve the robustness required. Commodity and sector models, which explicitly include the essentials of the structures, are more appropriate. From this point of view, equilibrium models are preferable to other types, since they depict both supply and demand in a rather detailed way. Among these models, those that depict the entire economy as well as take into account all economic

interdependencies, (general equilibrium models) are most suitable (Frohberg & Hartman, 1997). Since these models are, however, costly and time-consuming to build, they are not often employed for these purposes.

Results of policy simulations with these types of models typically include a variety of different variables, such as changes in output, input use, final consumption, export, import, prices, etc. It is certainly possible to draw conclusions about changes in competitiveness based on these variables. It might, however, be easier and more informative to calculate e.g. the RTA indicator by using the results of such simulations. The same indicators might be calculated for observed data as well, to make comparisons between past and possible future outcomes.

Highly suitable mathematical models are not often employed for comparing competitiveness across countries, due to the high requirements in terms of manpower, data and time; however, once specified they can easily be used to analyse the impact of a variety of policy scenarios (Frohberg & Hartman, 1997).

3.2.2.3 Determinants of competitive advantage – Porter's diamond model

When and why is an industry internationally competitive? How sustainable is its position? In order to find answers to these questions, a question posed by Porter (1990) must firstly be addressed: "Why does an economy achieve international success in a particular industry?"

According to Porter, the answer lies in six broad criteria or attributes that shape the environment in which firms compete and promote the creation of competitive advantage.

The work of Michael Porter (1990, 1998) contributed to strategic thinking about industry and competitive analysis, and then later, about the competitiveness of nations. The Porter (1990, 1998) approach looks at clusters of industries, where the competitiveness of one company is related to the performance of other companies and other actors tied together

in the value-added chain, in customer-client relations, or in local or regional contexts. This work has led to efforts that identify and measure the key factors that influence competitiveness and to develop strategies for achieving it.

Although the Porter diamond model is a more qualitative description of factors determining the competitive success of an industry in a particular country, it can also be used as a quantitative measure to compare the competitiveness of industries in a particular country or a particular industry among different countries (see for example ISMEA, 1999; Van Rooyen, 1998; Venter, 1999; De Kleijn & Heybroek, 1992; Esterhuizen, Van Rooyen & D'Haese, 2001; Esterhuizen & Van Rooyen, 2004). In these studies, scores are given to each factor determining the competitive success of the industry in the specific countries. The scores are then compared among countries. The Porter analysis can also be used to determine the trends in the factors impacting on the competitiveness of a sector or industry, if the analysis is done annually or even every second year.

There are two disadvantages by using scores to reflect the competitiveness of an industry. Firstly, it is difficult to determine an overall score per country, because different aspects are weighted differently. Another disadvantage is that different qualities are required in different market segments. However, Porter's diamond model is the most widely used framework for an assessment of dynamic competitive advantage. Each of the elements of the diamond will now be discussed in more detail.

Factor conditions: A nation's endowments of factors, land, labour and capital plays a very important role in the competitive advantage of a nation's firms. The role of factors is, however, different and far more complex than is often understood by economists. The factors most important to competitive advantage in most industries are not inherited but are created within a nation, through a process that differs widely across nations and among industries. The stock of factors at any particular time is less important than the rate at which they are created, upgraded and made more specialised to particular industries.

On the other hand, the abundance of factors may undermine, instead of enhance, competitiveness. The most important factors of production are those that involve sustained and heavy investment and that are also specialised. Basic factors, such as a pool of labour or a local raw-material source, do not constitute an advantage in knowledge-intensive industries. Companies can access them easily through a global strategy or circumvent them through technology.

Contrary to conventional wisdom, simply having a general work force that is high school or even college educated represents no competitive advantage in modern international competition. To support competitive advantage, a factor must be highly specialised to an industry's particular need. These factors are scarcer, more difficult for foreign competitors to imitate – and they require sustained investment to create. Competitive advantage from factors depends on how efficiently and effectively they are deployed.

Factors can be grouped into a number of broad categories:

- ? Human resources: The quantity, skills and cost of personnel and management.

- ? Physical resources: The abundance, quality, accessibility and cost of the nations land, water, mineral, etc. Climatic conditions can be viewed as part of a nation's physical resources, as can a nation's location and geographic size.

- ? Knowledge resources: The nation's stock of scientific, technical and market knowledge bearing on goods and services. Knowledge resources reside in universities, government research institutes, private research facilities, government statistical agencies, business and scientific literature, market research reports and databases, etc.

- ? Capital resources: The amount and cost of capital available to finance industry.

? Infrastructure: The type, quality and user cost of infrastructure available that affects competition, including the transportation system, the communication system, postal service, etc.

Demand conditions: The second broad determinant of competitiveness in an industry is home demand conditions for the industry's product or service. While home demand, through its influence on economies of scale, can confer static efficiencies, its far more important influence is dynamic efficiencies. It shapes the rate and character of improvement and innovation by a nation's firms. Three broad attributes of home demand are significant: the composition or nature of buyer needs of home demand, the size and pattern of growth of home demand, and the mechanisms by which a nation's domestic preferences are transmitted to foreign markets. The significance of the latter two is contingent to the first. The quality of home demand is more important than the quantity of home demand in determining competitive advantage.

It might seem that the globalisation of competition would diminish the importance of home demand. In practice, however, this is simply not the case (Cho & Moon, 2000). In fact, the composition and character of the home market usually has a disproportionate effect on how companies perceive, interpret and respond to buyer's needs. Nations gain competitive advantage in industries where the home demand gives their companies a clearer or earlier picture of emerging buyer's needs, and where demanding buyers' pressurise companies to innovate faster and achieve more sophisticated competitive advantage than their foreign rivals. The size of home demand proves far less significant than the character of home demand.

A nation's companies gain competitive advantage if domestic buyers are the world's most sophisticated and demanding buyers for the product or service. Sophisticated, demanding buyers provide a window into advanced customer needs; they pressure companies to meet high standards; they prop them to improve, to innovate and to upgrade into more advanced segments. As with factor conditions, demand conditions provide advantages by forcing companies to respond to these challenges.

Related and supporting industries: The third broad determinant of competitiveness in an industry is the presence of supplier or related industries that are internationally competitive in a nation. Internationally competitive home-based suppliers create advantages in downstream industries in several ways. They deliver the most cost-effective inputs in an efficient, early, rapid and sometimes preferential way. Far more significant than mere access to components and machinery, however, is the advantage that home-based related and supporting industries provide in innovation and upgrading – an advantage based on close working relationship. Suppliers and end-users located near each other can take advantage of the short line of communication, the quick and constant flow of information and an ongoing exchange of ideas and innovations. Companies have the opportunity to influence their suppliers' technical efforts and can serve as test sites for R&D work, accelerating the pace of innovation.

Companies benefit most when the suppliers are, themselves, global competitors. It is ultimately self-defeating for a company or country to create suppliers who are totally dependent on the domestic industry and prevented from serving foreign competitors. By the same token, a nation need not be competitive in all supplier industries for its companies to gain competitive advantage. Companies can readily source from abroad materials, components or technologies without a major effect on innovation of performance of the industry's products. The same is true of other generalised technologies like electronics or software, where the industry represents a narrow application area.

Firm strategy, structure and rivalry: The fourth broad determinant of national competitive advantage in an industry is the context in which firms are created, organised and managed as well as the nature of domestic rivalry. The goals, strategies and ways of organising firms in industries vary widely among nations. A wide range of social and historical factors have led to differences among countries in management practices and individual attitudes towards risk and international competition. These factors affect how firms are organised and operated. National advantage results from a good match between these choices and the sources of competitive advantage in a particular industry. The

pattern of rivalry at home has also a profound role to play in the process of innovation, as well as the ultimate prospects for international success.

It is often argued that domestic competition is wasteful, because it leads to duplication of effort and it prevents firms from gaining economies of scale. The appropriate solution is seen as nurturing one or two firms who become "national champions", with the scale and strength to compete against foreign rivals or, alternatively, to promote inter-firm cooperation (Porter, 1990). Domestic rivalry, like any rivalry, creates pressure on firms to improve and innovate. Local rivals push each other to lower costs, improve quality and services and create new products and processes. While firms may not maintain the advantage for long periods, active pressure from rivals stimulates innovation as much from fear of falling behind as the inducement of getting ahead.

Vigorous local competition not only sharpens advantage at home but it also places pressure on domestic firms to sell abroad in order to grow. In particular when there are economies of scale, local competitors force each other to look outward in the pursuit of greater efficiency and higher profitability. Toughened by domestic rivalry, the stronger domestic firms are equipped to succeed abroad. It is rare that a company can meet tough foreign rivals when it has faced no significant competition at home.

Domestic rivalry does not only create pressure to innovate but also to innovate in ways that upgrade the competitive advantage of a nation's firms. The presence of domestic rivals nullifies the types of advantage that come simply from being in the nation - such as low labour costs or low-cost debt financing. Domestic rivalry forces a nation's firms to seek higher-order and ultimately more sustainable sources of competitive advantage. Firms must find proprietary technologies, reap economies of scale, create their own international marketing networks, or exploit national advantages more effectively than the competitor down the street. Intense domestic rivalry helps break the attitude of dependence on basic factor advantages, because local rivals have them as well. Without local rivals, a firm in a nation with factor advantage tends to rely on them and, worse yet, to deploy factors less efficiently.

Intense domestic rivalry depends on new business formation to create new competitors. New business formation is also vital to the upgrade of competitive advantage, because it feeds the process of innovation in an industry. New companies serve new segments and try new approaches that older rivals fail to recognise, or to which they are too inflexible to respond.

The diamond as a system: The four key sets of determinants of competitive advantage are dependant on and reinforce each other. For example, effective supplier industries require access to quality factors of production and good working relationships with demanding buyers.

The four determinants, their elements and their interrelationships represent factors that have been observed or considered to be the basis of a competitive advantage by some industry in one country versus that industry in another country. Each of these four attributes defines a point on the diamond of national advantage; the effect of one point often depends on the state of the others. Sophisticated buyers will not translate into advanced products, for example, unless the quality of human resources permits companies to meet buyer needs. Selective disadvantages in factors of production will not motivate innovation, unless rivalry is vigorous and company goals support sustained investment. At the broadest level, weaknesses in any one determinant will constrain an industry's potential for advancement and upgrading.

Government attitude and policy: Government plays a vital role. Government can influence each of the above determinants, either positively or negatively, through policy and operational capacity. That is why government, as a determinant of competitiveness, must be viewed apart from the four determinants.

However, government should not have to employ a host of policies to contribute directly to the competitive performance of industries. Government's proper role is as a catalyst and challenger. Its role is to encourage companies to raise their aspirations and move towards higher levels of competitive performance. Government cannot create

competitive industries; only companies can do that. Government plays a role that is inherently partial, that succeeds only when working in tandem with favourable underlying conditions in the diamond. Still, government's role of transmitting and amplifying the forces of the diamond is a powerful one. Government policies that succeed are those that create an environment in which companies can gain competitive advantage rather than those that involve government directly in the process (Porter, 1998).

The role of chance: Chance events are occurrences largely beyond the power of firms (and often the national government). Events such as wars, political decisions by foreign governments, large increases in demand, shifts in world financial markets and exchange rates, discontinuity of technology and input demand can be described as chance events. Such events can nullify sources of competitive advantage and create new ones. The ability of an industry to respond will depend on the status of other parts of the competitive diamond.

The approach is clear. Porter (1990, 1998) does not, however, prescribe a methodology. It is clear that a very large number of factors have to be taken into account by the analyst, but there is no list of data requirements or statistical tests. A great deal is left to the individual analysts, including the depth to which they choose to go in the analysis. There is no agreement on what precisely constitutes a Porter study (Pitts & Lagnevik, 1997).

3.2.2.4 Business confidence indexes

Change in virtually every stratum of society is a feature of our time. In addition to far-reaching political changes occurring not only in South Africa, but also in the world at large, demographic, economic and social changes affect the quality of life and the business environment. It is important that these changes are measured, that emerging trends should be determine and that strategies should be developed accordingly.

To measure these changes, economists have developed indicators, generally known as indexes. An index is a ratio that measures a relative change (Steyn, Smit & Du Toit, 1989). The goal with the calculation of an index is to quantify change in a standardised way.

An index is set at a numerical level on the base period or starting point against which a percentage change can be compared to at any particular point of time. Generally speaking, indexes measure the size or magnitude of some object at a particular point in time as a percentage of some base or reference object in the past.

Indexes are also composite measures of variables: measurements based on more than one data item. Thus, a survey respondent's score on an index of confidence would be determined by the specific responses given to several questionnaire items, each of which would provide some indication of his or her confidence.

Over the years, indexes have become increasingly more important to management as indicators of the changing economic and business environment and activity. In fact, the use of indexes has become the most widely accepted procedure for measuring changes in business conditions (Steyn, Smit, Du Toit & Strasheim, 1996).

Although this is not essentially so, an index is usually expressed as a percentage. An index greater than 100% represents an increase whiles an index smaller than 100% indicates a decrease.

Basically, three practical problems can arise when constructing an index. Firstly, each index number must have a base period for which the value of the index is 100. The selection of a typical base year is somewhat arbitrary, but very important. If a particularly exceptional period were selected when the values of the variables were quite extreme, then all other values of the index will be affected (Harnett & Murphy, 1975).

A second arbitrary choice involves the selection of the type of index to use (simple, relative, weighted, etc.) and of the appropriate weights to use in combining the values of different items included in the aggregate measure. Incidentally, the choice of items to include is often very debatable. An attempt should be made to include the most common and representative items. The third and most compelling practical problem in constructing an index is obtaining sufficient and accurate data for all the items included.

A simple index is used to represent the change of a single factor, while a composite index is used to represent the change of more than one factor. When an unweighted composite index is calculated, the changes of all the factors are regarded as equally important, while in a weighted composite index different weights are allocated to the factors according to the relative importance of each.

The selection of the weighting leads to special types of composite index. If the weights of the base period are used, the index is called the Laspeyres index. If new weights for every period are calculated, the index is called the Paasche index (Steyn et al, 1996). The Paasche index requires more data and more computation, because the weights must be determined in each period.

In the long run, the Laspeyres index tends to overstate because it is unable to account for the substitution effects between factors in the index. The Paasche index tends to understate because it overreacts to the substitution effect. During fairly stable times, the substitution effects will have a similar influence on the Lasppeyres and Paasche indexes.

In South Africa, the business confidence indexes developed by the South African Chamber of Business (SACOB, 2002) and the University of Stellenbosch's Bureau of Economic Research (Bureau for Economic Research, 2000), measuring the business confidence of managers in South Africa, are well known. However, until now there was no index measuring the business confidence of agribusinesses operating in the agro-food and fibre complex of South Africa.

The measurement of business confidence is important, as it is a reliable indicator of the current and expected state of the economy. As already shown in Chapter two, there is a direct relationship between competitive performance and confidence (Vealey, 2001). Confidence is, in effect, a belief, a self-assurance in one's own ability. It is essentially a feeling of having an expectation of success (Vealey, 2001). Kanter (2004) stated that confidence is so important that it lies at the heart of civilization. Everything about the economy, a society, an organisation or team depends on it, since every step taken and every investment made is based on whether we count on ourselves and others to accomplish what has been promised. Lingering economic sluggishness can be blamed partly on a sag in confidence (Kanter, 2004). Confidence is an important factor driving behaviour up and down. Business success and failure aren't just episodes, but self-perpetuating trajectories shaped by confidence or the lack thereof (Kanter, 2004).

Business confidence will therefore have a direct influence on the competitive performance of firms. Business confidence is a belief, an assurance, in the business environment, company resources and in the business's ability to adapt and compete successfully. Expectancy of success and the level of aspiration are very closely related to the actual level of success. If the business confidence is low, investment will be less and energy and productivity levels will be low, which will directly influence the competitive performance of businesses. In life, confidence can determine the difference between success and failure, mastery and misfortune. This is the phenomenon of the self-fulfilling prophecy which shows quite conclusively that, in performance situations people tend to confirm their own beliefs and in fact do "live up" to their expectations (Davies, 1989).

The South East Asian crisis reflects the importance of business confidence and sentiments in any market (Srivastava, 1999). Despite the strong fundamentals of these economies, the speed and extent of the crisis shocked everyone. The single plausible explanation that seems to have emerged for this crisis is a shift in the expectations equilibrium. Expectations or sentiments therefore have an impact on economic growth. This is evident from the pattern observed between economic growth and business

sentiment. Different elements of economic growth are impacted on by sentiment to varying degrees.

3.3 A FRAMEWORK FOR ANALYSING THE COMPETITIVENESS OF THE AGRIBUSSINESS SECTOR IN SOUTH AFRICA

In Chapter two and thus far in Chapter three the concept of competitiveness and the theories and measures of competitiveness were discussed. This section builds on this by developing a framework for assessing the competitiveness of the agribusiness sector in South Africa and analysing its determinants and sustainability. This framework must help to answer the questions stated in the problem statement and meet the objectives of this study. Given this conditions, a framework consisting of five steps was developed to determine and analyse whether the South African agribusiness sector can successfully compete on a sustainable basis within the global environment.

The five steps are as follows (see also Figure 3.2):

? **Step 1: Defining competitiveness:** This step is important as it will focus the competitive measurement and analysis of the agribusiness sector in South Africa. The definition of competitiveness will guide the choice of methodology and consequently the data needed and the gathering process. In Chapter two competitiveness was defined as *the ability of a sector, industry or firm to compete successfully in order to achieve sustainable growth within the global environment while earning at least the opportunity cost of returns on resources employed.* *To compete means to try to gain or win something by defeating other competitors.*

From the definition five aspects emerged as being important to focus a comprehensive competitiveness analysis of the agribusiness sector in South Africa, namely:

? Competitiveness is a dynamic and involved process, instead of an absolute state of affairs.

? Competitiveness can only be assessed within a relative sense.

? Competitiveness is a tool for agribusinesses to continuously exploit the local and/or global market reality, including uneven economic "playing fields", for gain relative to other competitors. Competitiveness can therefore only be measured by the gains from this trade.

? Competitiveness is a holistic viewpoint on the ability to sustain the gains achieved through trade and is dependant on key success factors and constraints that must be identified.

? In order to sustain competitiveness it is important to predict change correctly and act upon such predictions in an innovative manner to mobilise and attract scarce resources from other economic endeavours.

? **Step 2:** **Measuring the competitiveness status:** The second step is to measure whether the South African agribusiness sector can compete internationally. The Revealed Comparative Advantage model as developed by Balassa (1977, 1989) and extended by Volrath (1991) to the Relative Trade Advantage (RTA) method, will be used. In this quantitative method, it is argued that competitive advantage could be indicated by the trade performance of individual commodities, chains and countries in the sense that the commodity trade pattern reflects relative market costs as well as differences in non-price competitive factors, such as government policies.

This method supports the final definition developed on competitiveness and also the notions describe in Chapter two. To measure how competitive the agribusiness sector in South Africa is, it is necessary to determine how

successfully the sector sold its products over time in the local and global environment relative to other competitors. The Relative Trade Advantage method allows for the measurement of competitiveness under real world conditions such as uneven economic "playing fields", distorted economies and different trade regimes and is therefore the most suited for measuring competitiveness status.

The competitiveness status relative to global competition at the commodity or industry level will also be determined. A supply chain approach will be used in this analysis.

A supply chain focus on competitiveness is necessary. Supply chains are institutional arrangements that link producers, processors, marketers and distributors (from the farm, beyond the farm-gate right up to serving the final consumer) – often separated by time and space – that progressively add value to products as they pass along the chain. Supply chains distribute benefits and apportion risks among participants, thus enforcing internal mechanisms and developing chain wide incentives for ensuring timely production and delivery. Supply chain analysis (or added value analysis) indicate the competitiveness of each element or activity in the value chain. A "supply chain perspective" gives a particular description to the food and agribusiness sector.

In South Africa, a supply chain approach for agribusiness sector analysis is important. Wentzel (1996) showed that farm level wool production and woodpulp production in South Africa is internationally highly competitive. However, when processed further ("value-adding") these commodities show a reduced level of competitiveness. Similar trends are observed for maize (unmilled) when processed as animal feed. Milled white maize, however, is internationally highly competitive. Inus van Rooyen (1999) analysed the competitiveness of the flower industry in South Africa and concluded that South African wild flowers and foliage production is internationally highly competitive, while houseplants and cutflowers, being more industrialised processes, are less.

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These observations indicate that certain processes in the supply chain can indeed be competitive, while others are less or even non-tradable - which will constrain overall sector/industry competitiveness. Any comprehensive statement on competitiveness should thus account for supply chain relationships.

? **Step 3: Analysing the competitiveness status:** The challenge is to determine how the competitive performance of the agribusiness sector in South Africa is achieved. The aim is to determine the key success factors that established a competitive advantage and the constraints that impacted negatively on the competitiveness of agribusinesses. The determinants of competitiveness, as described by Porter (1990, 1998), will be used as bases. Porter's (1990, 1998) theory of competitive advantage is an effort to identify the many factors that influence competitiveness and to show how they relate to each other and to the economic performance of a country's industries in a global economy. While the traditional and new trade theories provide the important explanation of production and trade patterns, as well as their effects on economic welfare, the work of Porter aims at understanding the process of change and why particular sectors in particular countries have been more successful than others.

The focus of this institutional analysis will be at the firm level i.e. individual firms will be requested to participate in the data gathering process through questionnaires. Executive opinions will thus be gathered.

Business survey is a technique that was developed in the 1930's in the USA and independently in Germany in the 1940's. Currently, this technique is applied in 57 countries. Some of the best known surveys are those of the European Union and Japan. Today, the business survey technique has a high standing amongst academics, business people and policy makers in South Africa as well as aboard (Bureau for Economic Research, 2000).

In the application of this descriptive methodology, the institutional forces that have an influence on the competitiveness of the agribusiness sector in South Africa will be described. Whereas the hard data in step 2 of the framework is used to measure competitiveness status over a specific period, the survey data measure competitiveness as it is perceived. The survey responses will reflect perceptions of competitiveness and indications for the future by business executives who are dealing with global business situations. Their responses are more recent and closer to reality since there is no time lag, which is often a problem with hard data. The Executive Survey will offer many unique measures and will capture the informed judgments of business leaders and decision-makers in the agribusiness sector of South Africa on issues that influence their sector's competitiveness.

? **Step 4:** **Analysing the agribusiness decision-making environment:** One important characteristic of today's modern world is that almost daily changes occur on many terrains. Agriculture and agribusinesses are not excluded from this phenomenon and far reaching changes are constantly being experienced. Globalisation, technology and rapidly changing trends in consumer behaviour, in particular, impact heavily on the way agribusinesses conduct their business. The changes are also dynamic, changing the nature of farming and business that create a need for regularly responses. These changes have a direct effect on the business confidence of managers by influencing their next business decision – short, medium and long term. These business decisions will have a direct effect on the future competitiveness performance of agribusinesses. Business confidence is thus an important measure of the status of the decision-making environment in which businesses operate.

An Agribusiness Confidence Index will be developed to determine the confidence of the agribusiness sector in South Africa. The challenge is to develop a measurement of changes in the business confidence of agribusinesses in reaction to the changing environment, in order to make a contribution to competitive

analysis and to assist with decision-making in a dynamic world. The goal of the Agribusiness Confidence Index will be to determine the business confidence of agribusinesses as accurate as possible. Micro and macro indicators will be included in the index. A Laspeyres index type, that assign weights to each indicator will be used in constructing an Agribusiness Confidence Index.

Data will be collected every quarter from a representative group of agribusinesses. Senior executives of these agribusinesses will give their opinion on the current state of the decision-making environment. Their views are obviously based on their individual experiences and perceptions, but it will also be based on hard facts that are essential for sound business decision-making.

In steps three and four of this framework inputs will be contributed exclusively by leading agribusiness executives and entrepreneurs whose current perceptions of the business environment in which they work are captured in their responses to comprehensive and scientifically constructed questionnaires. The respondents will, in participating, also be provided with the opportunity to identify key obstacles to economic growth in the agribusiness sector of South Africa and therefore contribute to an assessment of the quality of the business environment in which their companies operate. This, in turn, may help precipitate an internal debate within the agribusiness sector, between government officials, business leaders, organisations of civil society and the academic community on key problem areas and provide guidance as to how best to address them.

? **Step 5: Developing strategies to enhance the competitiveness of the agribusiness sector in South Africa:** The previous three steps of the framework combine quantitative and hard data with qualitative analysis and opinion survey data. These steps in the analyses will provide a different but complementary viewpoint on the issue of competitiveness, and will contribute to the establishment of an enhanced understanding and comprehensive statements on the competitiveness of the agribusiness sector in South Africa. Using this

intelligence, strategies can be developed to enhance the competitiveness of the agribusiness sector in South Africa.

This 5 step-framework is coherent with the notions on competitiveness used in this study and will analyse the ability of the agribusiness sector in South Africa to compete successfully on a continuous bases in the global economy.

COMPETITIVENESS ANALYSIS OF THE SOUTH AFRICAN AGRIBUSINESSES SECTOR

Defining competitiveness

Measuring the competitiveness status of the agribusiness sector	Determining the key success factors and the constraints impacting on competitiveness	Analysing the decision-making environment of agribusinesses
Quantitative measurement at industry and commodity/product level	Qualitative and quantitative analysis at institutional level	Qualitative and quantitative analysis at institutional level
Relative Trade Advantage (RTA) (Balassa, 1965, 1989) (Volrath, 1991)	Determinants of competitiveness (Porter, 1990, 1998)	Agribusiness Confidence Index (Steyn et al, 1996)
Time series data	Questionnaires	Questionnaires

Statistical analysis

Comprehensive statement on competitiveness

Development of strategies to enhance the competitiveness of the agribusinesses sector in South Africa

Figure 3.2: A framework for analysing the competitiveness of the agribusiness sector in South Africa

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CHAPTER FOUR

MEASURING AND ANALYSING THE COMPETITIVENESS STATUS OF THE SOUTH AFRICAN AGRIBUSINESS SECTOR

4.1 INTRODUCTION

In this chapter, the competitiveness status and trends in the competitiveness of the agribusiness sector in South African is determined and discussed. The competitiveness of selected agro-food and fibre commodity chains is also determined and variations highlighted. The methodology of the second step of the framework developed in the previous chapter will be used in this regard. Selected factors impacting on the competitiveness status of the agribusiness sector are also analysed.

From these analyses specific statements around the competitiveness status of the agribusiness sector in South Africa are discussed. This Chapter will also serve as a basis for the exploration of a number of opportunities and relationships for South African agribusinesses in the next two chapters.

4.2 MEASUREMENT OF THE COMPETITIVENESS STATUS OF THE SOUTH AFRICAN AGRIBUSINESS SECTOR

4.2.1 Methodology

As discussed in Chapter Three, to determine the competitiveness status of the South African agribusiness sector, the Relative Comparative Advantage (RCA) model developed by Balassa (1977, 1989) and extended by Volrath (1991) to the Real Trade Advantage (RTA) method will be used.

4.2.2 Data used

To measure how competitive the agribusiness sector in South Africa is, it is necessary to determine how successful the sector traded its products, relative to its competitors, over time in the local and international market. For this purpose imports and export data is needed to compare the South African performance against global competition. The data collection process for this can be quite formidable, as the data is not necessarily available or published in the required format. In order to ease this problem, trade data (imports and exports values) were taken from the Food and Agricultural Organisation of the United Nation's (FAO) agricultural database. Although questions about the quality of the data can be ask, it is one of the best agricultural databases available given the cost of gathering primary data. The database is also available on the Internet (http://www.fao.org). Trade data from year 1961 to 2003 were used in order to calculate the current competitiveness status as well as long and short term trends.

The Food and Agriculture Organization of the United Nations, as part of its mandate, compiles information and data on various aspects of food and agriculture from all countries. The data is analysed and interpreted to support FAO's programmes and activities. In accordance with the basic functions of the FAO, the data are disseminated to the public through publications, CD-ROM, diskettes and the Internet.

"FAOSTAT" - the user interface to the database, provides data under eighteen domains. The data can be broadly classified into three groups: (a) country-level data referring to items such as agricultural production and trade, producer prices, land use, means of production, etc., (b) derived data such as agricultural production and trade indices, food supply etc., and (c) data referring to items such as population and labour force that are derived by, or in collaboration with, other international agencies.

Country-level data is collected through (a) tailored questionnaires sent annually to member countries, (b) magnetic tapes, diskettes, transfers and accessing websites of the countries, (c) national/international publications, (d) visits to the country made by the

FAO statisticians, and (e) reports of FAO representatives in member countries. The consistency of the various data sets is checked through the framework of the "Supply and Utilisation Accounts". Established guidelines for preparation of these accounts are used (FAOSTAT, 2003).

4.2.3 Competitiveness status of the agribusiness sector

In Table 4.1 and Figure 4.1 the competitiveness status of the agribusiness sector in South Africa is shown. From the table and figure it is evident that the South African agribusiness sector's RTA values are situated round-about zero (RTA 2003 value = 0.55; RTA 2002 value = 0.46; RTA 2001 value = 0.48). This result classifies the South African agribusiness sector as being generally marginal as far as international competitiveness is rated. However, the competitiveness of the agribusiness sector recorded relatively positive trends in competitiveness from 1961 to 1973; from 1985 to 1990 and the past ten years (1994 to 2003).

The trends in the competitiveness of the agribusiness sector in South Africa from 1961 to 2003 can be divided into five phases (see Figure 4.1). The first phase is during the 1960's and early 1970's. South Africa's agribusiness sector was relative competitive, with RTA values above one. This was mainly as a result of relatively low interest rates and low inflation. Subsidies and high protection from government also contributed to making the sector more competitive during this period.

The second phase is from the mid-seventies to the mid-eighties. Sanctions were introduced in this period that resulted in a huge drop in competitiveness. Interest rates were also relatively high. Also during this period the marketing of agricultural products were regulated by marketing boards. Note also the negative impact of the drought years of 1973/74, 1978/79, 1983/84 and 1984/85 on the competitiveness of the agribusiness sector in South Africa.
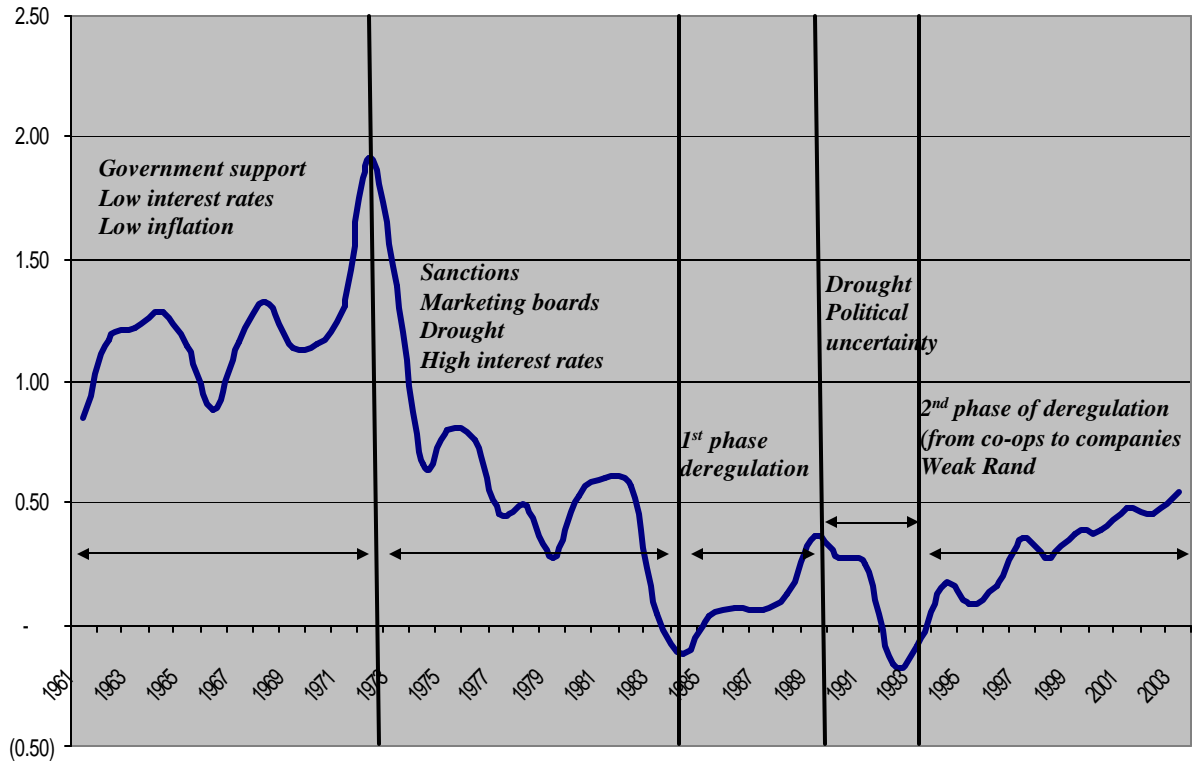
Figure 4.1: The competitiveness status of the South African agribusiness sector

Source: Own calculations based on data from FAOSTAT 2003

Table 4.1: The competitiveness status of the South African agribusiness sector

	RTA 2003	RTA 2002	RTA 2001	Trends 1961-73	Trends 1974 - 84	Trends 1985 - 90	Trends 1991 – 93	Trends 1994 – 03
The South African agribusiness sector	0.55	0.46	0.48	+	-	+	-	+

Source: Own calculation based on data from FAOSTAT 2003.

Notes: '+' Positive trend; '-'negative trend;

Competitive (RTA > 1), marginal competitive (1 > RTA > -1), not competitive (RTA < -1).

The third phase is from the mid 1980's to the early 1990's. This slight increase in the competitiveness of the agribusiness sector in South Africa can be attributed to the first phase of deregulation that was introduced. The fourth phase is the sharp decline in competitiveness in the early 1990's that was mainly because of the drought and the political uncertainty before the first democratic election in South Africa.

The fifth and current phase is the definite positive trend in the competitiveness of the agribusiness sector in South Africa from 1992 onwards. The competitiveness index for the South African agribusiness sector increased from –0.16 in 1992 to 0.55 in 2003. This positive trend of the last ten years in the competitiveness of the agribusiness sector occurs despite the ever more decreasing terms of trade (National Department of Agricultural, 2004).

The period from 1992 also indicates the start of the sharp and continuous decrease in the value of the Rand against the US$. Although the devaluation of the Rand plays an important role in making the prices of South African products more competitive (Esterhuizen & Van Rooyen, 2001), these authors also showed that this is not the only reason for the improvement in competitiveness. This increase in competitiveness can also be attributed to the improved business know-how of South African agribusinesses; the 2nd phase of deregulation of the agricultural sector, which amongst others resulted in a change in business form from co-operatives to companies; the elimination of non-competitive business; the delivery of quality products and an increase in labour productivity in the agribusiness sector.

Kirsten & Vink (1999) stated, through empirical evidence, that on balance, the process of deregulation has resulted in a nett welfare gain to the commercial agricultural sector. Kirsten & Vink (1999) found, for example that the general level of investment in agricultural has been relatively high throughout the nineties, and substantially higher than in the period before 1990.

4.3   SOUTH AFRICA VERSUS OTHER COUNTRIES

Table 4.2 describes the trends and the status in the competitiveness of the agribusiness sectors of selected countries from 1993 to 2002 – the last ten years. The table is divided into six blocks. The competitiveness of the country, in 1993 as the base year for comparison, is shown on the vertical axis and can be either competitive (RTA > 1), marginally competitive (1 > RTA > -1) or not competitive (RTA < -1). The trend in competitiveness for the period 1993 to 2002 is shown on the horizontal axis and can either be increasing or decreasing.

If the competitiveness of the country's agribusiness sector in 1993 was positive and there was an increase in competitiveness in the period from 1993 to 2002, the country's agribusiness sector is classified as a "winner"; and if a sector was not competitive in 1993, but there was an increase in competitiveness in the period 1993 to 2002 the sector was classified as a "turn-around". A "losing" country's agribusiness sector was not competitive in 1993 and it had a decreasing trend in competitiveness from 1993 to 2002, etc.

Table 4.2: "Winning" and 'losing" agribusiness sectors of selected countries

Trends in competitiveness 1993 – 2002			
		Increase	Decrease
Competitiveness in 1993	**Competitive**	Winners: Argentina; Australia; Brazil; Chile; Ivory Coast; Greece; New Zealand	Declining high performers: India; Kenya; Mauritius; Netherlands; Paraguay; USA; Zimbabwe; Denmark; Hungary; Madagascar; Thailand; Turkey
	Marginal	Rising moderate Performers (catch-up): Belgium; Canada; Germany; Italy; Portugal; **South Africa**; Spain; United Kingdom	Declining moderate performers: China; France; Israel; Lesotho; Mexico; Mozambique; Namibia; Nigeria; Switzerland; Indonesia; Sweden
	Not Competitive	Turn-around: Russia; Angola; Peru	Chronic underperformers (losers): Botswana; Egypt; Japan; Uruguay; Zambia

Source: Own calculations based on data from FAOSTAT 2003

From Table 4.2 it is apparent that the South African agribusiness sector is classified as a "Rising moderate performer" i.e. the South African agribusiness sector was marginally competitive in 1993 and it shows a positive trend in competitiveness from 1993 to 2002. Belgium, Canada, Germany, Italy, Portugal, Spain and the United Kingdom are in the same category. Australia, Argentina, Brazil, Chile, Ivory Coast, Greece and New Zealand are classified as "winners".

India, Kenya, Mauritius, Netherlands, Paraguay, USA, Zimbabwe, Denmark, Hungary, Madagascar, Thailand and Turkey had a positive competitiveness status in 1993 but a negative trend in competitiveness from 1993 to 2002. Botswana, Egypt, Japan, Uruguay, and Zambia are classified as "losers", while Angola, Russia, and Peru have turned their competitiveness situation around.

A limitation of RTA analysis is that it does not explain how a country or region acquired its global market share and competitiveness status. Market share may well be attained by means of high export subsidies paid by governments (such as is for EU, USA, etc.) or protection (i.e. "uneven playing fields"). The sustainability of a competitive position might thus be in question, especially in view of the ongoing global movement to "free-up" markets and reduce subsidies and protection.

For the South African agribusinesses, the reality of "unequal playing fields" is indeed important. Without a comprehensive development policy as well as operational support to minimise "dumping" and crafty "green box" provisions by the highly subsidised economies of the European Union, Canada and the USA, it will be difficult for the South African agribusinesses to obtain and maintain an internationally competitive foothold. "Fair protection" will be required to reduce "unfair" distortions in world markets. However, the total removal of unfair distortions over the medium term is unlikely. Agribusinesses in South Africa should therefore attempt to mobilise and "cope-with-the-slope" while addressing the "unfair" trade practices with the rest of the Southern Africa region, as an economic block, at World Trade Organisation level. A strategy for this is currently non-existent.

4.4 MEASUREMENT OF THE COMPETITIVENESS STATUS OF SELECTED COMMODITY AND PRODUCT CHAINS IN SOUTH AFRICA

Table 4.3 illustrates a comparison between the competitiveness status of fifty-seven selected commodity and product chains. The competitiveness status for each chain is indicated for the years 2000, 2001 and 2002. The trends in competitiveness are also indicated in Table 4.3: the long-term trend (1961 – 2002), the trend in competitiveness from 1980, the last 10 years' trend and the last 5 years' trend. Each of the selected agro-food and fibre commodity and product chains will be discussed separately.

Table 4.3: The competitiveness of selected product and commodity chains in South Africa in 2002, 2001 and 2000 and trends in competitiveness from 1961 to 2002 based on the Relative Trade Advantage (RTA) index

Chain	Product	RTA 2002	RTA 2001	RTA 2000	Trends 1961-02	Trends 1980 - 02	Trends 1993 - 02	Trends 1998 - 02
Wheat chain	Wheat	(0.87)	0.15	(0.89)	-	-	+	+
	Flour of wheat	2.25	1.90	2.06	+	+	-	+
	Bran of wheat	(1.55)	(0.75)	(1.20)	-	-	+	-
	Macaroni	(0.35)	(0.44)	(0.50)	-	-	+	+
	Pastry	0.05	(0.09)	(0.07)	-	+	-	-
	Bread	(0.11)	(0.21)	(0.22)	+	+	+	+
	Breakfast cereals	0.16	(0.06)	(0.10)	-	-	+	+
Maize chain	Maize	0.85	1.58	1.11	-	-	-	-
	Flour of Maize	19.36	5.25	5.35	+	+	+	-
	Bran of maize	1.26	(0.64)	(1.09)	-	-	+	+
	Oil of maize	1.12	1.77	1.50	-	-	+	+
Potatoes chain	Potatoes	0.82	0.75	0.69	+	+	+	+
	Potatoes, frozen	0.08	0.09	0.05		+	+	-
	Flour of potatoes	(0.29)	(0.03)	2.27	+	+	+	-
Sugar chain	Sugar (Centrifugal, Raw)	7.78	9.77	7.89	+	+	+	+
	Sugar refined	2.88	2.92	4.97	+	+	+	-
	Sugar confectionery	0.47	0.52	0.58	-	+	+	+
	Maple sugar and syrups	0.05	(0.01)	(0.04)			+	+
Soybeans chain	Soybeans	(0.08)	(0.05)	(0.37)	-	-	+	-
	Oil of Soybeans	(2.16)	(1.41)	(0.24)	-	-	-	-
	Cake of Soybeans	(2.14)	(2.14)	(1.91)	-	-	-	-
	Soya sauce	(0.24)	(0.17)	(0.20)		-	-	+
Groundnuts chain	Groundnuts in shell	27.31	18.70	15.03	+	+	+	+
	Groundnuts shelled	3.76	2.53	2.13	-	+	+	+
	Oil of groundnuts	2.13	0.38	0.56	+	-	-	-
	Cake of groundnuts	0.09	0.02		-	-	+	+
	Prepared groundnuts	0.71	0.42	0.71		+	+	+
Sunflower chain	Sunflower seed	0.03	(0.01)	0.14	-	+	+	-
	Oil of sunflower	1.15	(3.08)	(3.90)	-	-	+	+
	Cake of sunflower	(2.06)	(1.64)	(3.32)	-	-	-	-

Chain	Product	RTA 2002	RTA 2001	RTA 2000	Trends 1961-02	Trends 1980 - 02	Trends 1993 - 02	Trends 1998 - 02
	Margarine	0.95	0.64	0.91	+	+	+	+
Cotton chain	Cotton seed	(1.76)	(5.96)	(5.52)	-	-	+	+
	Oil of cotton seed	(53.52)	(48.99)	0.50	-	-	-	-
	Cake of cotton seed	(16.46)	(17.09)	(12.45)	-	-	-	+
	Cotton lint	(2.22)	(1.26)	(0.78)	-	-	-	-
	Cotton carded combed	(0.30)	(0.18)	0.09	+	-	+	-
	Cotton linter	0.47	0.88	0.62	+	+	+	+
Sorghum chain	Sorghum	(1.19)	0.04	(0.11)	-	-	-	-
Barley chain	Barley	(2.58)	(1.81)	(1.65)	-	-	-	-
	Malt of barley	(3.10)	(2.51)	(3.10)	-	-	+	+
	Beer of barley	0.95	1.08	0.47	+	+	-	+
Tobacco chain	Tobacco	0.25	0.83	0.57	+	+	+	+
	Cigarettes	0.83	1.28	1.20	+	+	+	+
	Cigars cheroots	(0.35)	(0.44)	(0.57)	+	+	+	+
Tomatoes chain	Tomatoes	0.06	0.08	0.11	+	+	+	-
	Tomato juice	0.07	0.06	(0.04)	+	+	-	-
	Tomato paste	0.00	(0.24)	(0.10)	-	-	+	+
	Peeled Tomatoes	(0.50)	(0.50)	(0.60)	-	-	-	+
Essential oils chain	Essential oils	1.21	1.18	0.87	+	+	+	+
Oranges chain	Oranges	14.50	15.59	17.94	+	+	+	-
	Orange juice	1.70	3.65	2.94	+	+	+	-
Apples chain	Apples	6.40	6.31	6.44	-	+	-	-
	Apple juice	0.26	8.12	10.22	+	+	-	-
Apricot chain	Apricots	4.02	4.64	6.75	+	+	+	-
	Apricots, Dry	4.57	5.82	3.31	+	+	-	+
Asparagus chain	Asparagus	0.25	0.43	0.44	+	+	-	-
Avocados chain	Avocados	8.78	7.43	11.85	+	-	-	-
Green Beans chain	Beans green	0.24	0.22	0.86	+	+	+	+
Dry beans chain	Beans dry	(2.34)	(0.83)	(2.67)	-	-	+	+
Bananas chain	Bananas	(0.01)	0.01	0.00	+	-	+	+

Chain	Product	RTA 2002	RTA 2001	RTA 2000	Trends 1961-02	Trends 1980 - 02	Trends 1993 - 02	Trends 1998 - 02
Cabbages chain	Cabbages	0.22	0.28	0.08	+	+	+	+
Carrot chain	Carrots	0.44	0.33	0.34	+	+	+	+
Chillies and peppers chain	Chillies and peppers, green	0.02	0.02	0.02	+	+	+	-
Coffee chain	Coffee green	(0.56)	(0.63)	(0.52)	-	-	+	-
	Coffee extracts	(0.10)	(0.11)	(0.06)	-	-	+	-
	Coffee roasted	(0.40)	(0.36)	(0.27)	-	-	-	-
Garlic chain	Garlic	(0.02)	(0.04)	(0.06)	-	-	-	-
Grapefruit and Pomelos chain	Grapefruit and Pomelos	18.11	13.18	17.00	-	+	+	+
	Grapefruit juice	7.12	17.89	26.58	+	+	+	+
Grapes chain	Grapes	10.59	11.84	14.57	+	+	+	-
	Grape juice	5.87	5.55	7.66	+	+	+	+
	Raisins	9.88	8.16	6.92	+	+	+	+
Wine chain	Wine	4.28	3.76	4.02	+	+	+	+
Honey chain	Honey	(0.12)	(0.27)	(0.26)	-	-	+	-
Hops chain	Hops	(0.72)	(0.58)	(0.93)	+	+	-	+
Kiwi fruit chain	Kiwi fruit	(0.10)	(0.17)	(0.29)			-	-
Lemons and lime chain	Lemons and lime	6.06	5.99	5.95	+	+	+	+
Lettuce chain	Lettuce	0.08	0.04	0.05	+	+	+	+
Mangoes chain	Mangoes	3.78	2.50	2.82	+	+	-	+
Mushroom chain	Mushrooms	0.48	0.49	0.42	+	+	-	+
	Dried mushrooms	0.21	0.27	(0.11)	+	-	+	+
	Canned mushrooms	(0.07)	(0.18)	(0.16)	-	-	-	+
Olive chain	Olives, preserved	(0.12)	(0.18)	(0.18)	-	-	-	+
	Oil of olives	(0.53)	(0.52)	(0.55)	-	-	-	-
Onions chain	Onions	0.78	0.68	0.46	-	+	+	-
	Onions, dry	1.04	0.90	0.63	-	+	+	-
Papayas chain	Papayas	0.14	0.31	0.23		+	+	-
Peaches chain	Peaches and Nectarines	1.45	1.34	1.71	+	+	+	-
Pears chain	Pears	7.90	6.15	8.50	-	+	-	-
Peas chain	Peas fresh	0.69	0.23	0.28	+	+	-	+

Chain	Product	RTA 2002	RTA 2001	RTA 2000	Trends 1961-02	Trends 1980 - 02	Trends 1993 - 02	Trends 1998 - 02
	Peas, dry	(1.70)	(0.82)	(0.98)	-	-	+	-
Pineapple chain	Pineapples	0.74	1.23	1.69	-	+	+	-
	Pineapples, canned	5.95	4.41	6.07	-	-	+	-
	Pineapple juice	9.45	4.37	4.84	-	-	-	+
Plum chain	Plums	12.57	12.95	14.57	+	+	+	-
	Plums, dried	0.05	0.07	0.24	+	+	-	+
Strawberries chain	Strawberries	0.00	0.03	0.11	+	-	+	+
Watermelons chain	Watermelons	0.04	0.01	0.11	+	+	+	-
Sweet potatoes chain	Sweet potatoes	1.76	2.63	2.79	+	+	-	-
Tea chain	Tea	0.18	(0.37)	0.05	+	+	+	+
Egg chain	Hen eggs	1.68	0.88	0.61	-	+	+	+
	Eggs liquid	1.11	1.33	1.49	-	-	+	+
	Eggs liquid, dried	0.78	0.89	1.02	-	-	+	+
	Eggs dry whole yolks	0.17	(0.01)	0.01	+	+	-	+
Chicken chain	Chicken meat	(0.44)	(0.59)	(0.93)	-	-	-	+
	Canned chicken	0.15	0.11	0.44	-	-	+	-
Beef meat chain	Bovine meat	0.13	0.12	0.00	-	-	+	+
	Beef and veal	0.47	0.50	0.27	-	+	+	+
	Beef and veal, boneless	0.04	0.02	(0.13)	-	-	+	+
	Beef dried salt smoked	0.33	0.12	0.37	-	-	-	-
	Beef preparations	0.10	0.17	0.35	-	-	-	-
Milk chain	Cow milk (whole, fresh)	0.47	0.25	0.45	+	+	+	+
	Skim milk	0.39	0.20	0.27	+	+	+	-
	Dry whole cow milk	0.94	0.34	0.66	+	+	+	-
	Dry skim cow milk	(0.77)	(0.18)	(0.66)	+	-	-	-
	Butter of cow milk	(0.01)	(0.18)	(0.48)	-	-	-	-
	Cheese	0.02	(0.16)	(0.14)	+	-	+	+
	Cream, fresh	0.26	0.16	0.26	+	+	+	-
	Chocolate products	0.32	0.29	0.22	+	+	-	-
	Ice cream	0.26	0.24	0.29			+	+

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Chain	Product	RTA 2002	RTA 2001	RTA 2000	Trends 1961-02	Trends 1980 - 02	Trends 1993 - 02	Trends 1998 - 02
	Yoghurt	0.20	0.03	0.02		-	-	-
Wool chain	Wool, greasy	6.73	4.17	4.56	-	-	+	-
	Wool, scoured	3.56	3.75	3.27	-	+	+	+
Mohair chain	Hair carded or combed	6.48	9.51	12.52	+	+	-	-
	Hair fine animal	31.37	21.27	3.05	-	+	+	+
	Hair coarse	10.98	58.38	100.03	+	+	+	-
Sheep meat chain	Meat sheep fresh	(0.51)	(1.14)	(1.94)	-	-	-	+
	Mutton and lamb	(0.52)	(1.17)	(2.00)	-	-	-	+
Leather chain	Hides and skins	1.91	1.08	0.80	-	-	-	+
	Hides wet salted	(0.08)	(0.60)	(0.90)	-	-	-	+
	Hides dry-salted	0.03	3.59	3.47	+	-	-	-
	Leather	0.49	0.19	0.07	-	+	-	+
Pork chain	Pork	(0.10)	(0.17)	(0.18)	-	-	+	+
	Pork preparations	(0.07)	(0.06)	(0.17)	-	-	+	-
	Bacon-ham	(0.05)	(0.02)	0.00	-	+	-	-
	Sausages	0.26	0.07	0.21	-	+	+	+

Source: Own calculation based on data from FAOSTAT 2003

Notes: Competitive (RTA > 1), marginal competitive (1 > RTA > -1), not competitive (RTA < -1); '+' Positive trend; '-' negative trend.

Wheat chain

The South Africa's wheat chain is relative marginal, as far as international competitiveness is concerned except for flour of wheat (relative competitive) and bran of wheat (relative uncompetitive). There is an increasing trend in competitiveness when moving from the primary to the processed products in the wheat value chain.

Wheat, the primary product of this chain, has a negative long-term trend in competitiveness. However, in the short-term, the trend in competitiveness is positive. Macaroni and breakfast cereals have also a negative long-term trend in competitiveness and a positive short-term trend in competitiveness. Flour of wheat and bread has positive trends in competitiveness in the short-term as well as in the long-term. Bran of

wheat and pastry has negative trends in competitiveness in the long-term as well as in the short-term.

Maize chain

South Africa's maize chain is very competitive in the international arena. The value adding process from primary to processed product in the chain is also competitive. Maize had an RTA value of 0.85 and maize flour an RTA value of 19.36 in 2002. Maize flour is also the third most competitive product in the agribusiness sector in South Africa.

Maize, however, shows negative trends in competitiveness in the long-term as well as in the short-term. Maize flour, on the other hand, shows positive trends in competitiveness. This mean that South Africa's maize chain has moved up the technological ladder (the 'value-added chain') in its competitive activities. It is, however, important to have a competitive local primary industry where primary inputs can be sourced. Both oil of maize and bran of maize have positive trends in competitiveness from 1993 to 2002.

Potato chain

The potato chain in South Africa is relatively marginal as far as international competitiveness is concerned. The potato chain shows a negative trend in competitiveness when moving from the primary to the processed product. Potatoes, the primary product, have had a positive trend in competitiveness from 1961 to 2002, from 1980 to 2002, from 1993 to 2002 and from 1998 to 2002. Frozen potatoes and flour of potatoes have positive long-term trends in competitiveness but demonstrated negative trends in competitiveness for the last five years.

Sugar chain

Sugar (centrifugal, raw) and refined sugar production in South Africa are internationally highly competitive. Sugar confectionery and maple sugar and syrups production are

marginally competitive. There is a definite negative trend in competitiveness when moving through the chain from the primary to the processed product.

Sugar (centrifugal, raw) production shows positive trends in competitiveness in the long-term as well as the short-term. Refined sugar production shows a positive trend in competitiveness in the long term but a negative trend for the last five years. Sugar confectionery and maple sugar and syrups have positive trends in competitiveness in the in the short run.

Soybeans chain

South Africa's soybeans chain is not internationally competitive. Soybeans and soy sauce is marginally (but on the negative side) competitive and oil of soybeans and cake of soybeans are not internationally competitive. There is also a negative trend in the competitiveness of value adding from the primary to the processed product in the soybeans value chain.

Soybeans, oil of soybeans and cake of soybeans have negative trends in competitiveness from 1961 to 2002, from 1980 to 2002 and for the last five years. Soya sauce demonstrated negative trends in competitiveness from 1980 to 2002 and from 1993 to 2002. Soya sauce, however, indicates a positive trend in competitiveness for the last five years.

Groundnuts chain

The whole groundnut chain is internationally highly competitive except for prepared groundnuts and cake of groundnuts, which are marginally competitive. The primary product, groundnuts in shell, was the second most competitive product in the agribusiness sector in 2002. One concern in the groundnut chain, however, is the decline in competitiveness when moving from the primary to the processed product in the chain.

Groundnuts in shell and prepared groundnuts show positive trends in competitiveness in the short as well as long run. Groundnuts shelled and cake of groundnuts shows definite positive trends in competitiveness the last ten and five years. Although oil of groundnuts has demonstrated a positive long-term trend in competitiveness from 1961 to 2002, there has been a definite negative trend in the competitiveness of oil of groundnuts for the last twenty years.

Sunflower chain

Sunflower oil manufacturing in South Africa has shown a dramatic change in competitiveness status from 2001 to 2002. In 2001 the competitiveness index of sunflower oil was negative, while in 2002 it was positive. This positive trend in competitiveness originates, however, from 1993. Sunflower seed and margarine are marginally competitive, while cake of sunflower is not competitive. There is, however, a decrease in competitiveness when moving from the primary to the value-adding products in the sunflower chain.

Sunflower seeds demonstrate a positive trend in competitiveness from 1980 to 2002. Its competitiveness has, however, for the past five years indicated a negative trend. Oil of sunflower has a negative long-term trend but a positive short-term trend in competitiveness. Cake of sunflower has both a negative short-term and long-term trend in competitiveness, while margarine has a positive trend in competitiveness in the long-term as well as the short-term.

Cotton chain

The cotton chain in South Africa is not very competitive internationally. Cottonseed, cake of cotton seed and cotton lint are highly uncompetitive internationally. Only cotton carded combed and cotton linter is marginally competitive. The whole cotton chain demonstrates negative trends in competitiveness from 1961 to 2002, except for cotton carded combed and cotton linter. Cotton seed, cake of cotton seed and cotton linter

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indicate positive trends in competitiveness for the past five years. The cotton chain, however, has a positive trend in competitiveness when moving from the primary to the processed product in the value chain.

Sorghum chain

The sorghum chain in South Africa was marginally competitive in 2000 and 2001 but not competitive in 2002. Sorghum also has a negative trend in competitiveness in the long run as well as in the short run.

Barley chain

The barley chain in South Africa is not internationally competitive, except for beer of barley – that is marginally competitive. Barley also has a negative long-term and short-term trend in competitiveness. Beer of barley and malt of barley have positive short-term trends in competitiveness. Beer of barley has a long-term positive trend in competitiveness. Malt of barley has a long-term negative trend in competitiveness.

Tobacco chain

The tobacco chain in South Africa is relatively marginally competitive internationally. All the products in the chain have positive trends in competitiveness form 1961 to 2002, from 1980 to 2002, from 1993 to 2002 and from 1998 to 2002. There is an increase in competitiveness when moving from the primary to the processed product in the chain.

Tomato chain

The whole tomato chain in South Africa is internationally marginally competitive. There is a small decrease in the competitiveness when moving from the primary to the processed products in the value chain. Tomatoes and tomato juice have positive long-term trends in competitiveness, while tomato paste and peeled tomatoes have negative

long-term trends in competitiveness. During the last ten years, tomatoes and tomato paste showed positive trends in competitiveness. Tomato juice and peeled tomatoes had negative trends in competitiveness for the past ten years. During the last five years, however, tomatoes and tomato juice demonstrated negative trends in competitiveness, whilst tomato paste and peeled tomatoes demonstrated positive trends.

Essential oils chain

The essential oils chain in South Africa is relatively competitive internationally and must be considered as one of the success stories in the South African agribusiness sector. Essential oils have a positive long-term and short-term trend in competitiveness.

Orange chain

South Africa's orange chain is highly competitive internationally. There is, however, a great negative trend in competitiveness when moving from the primary to the processed product, orange juice, in the value chain. Oranges as well as orange juice indicate positive long-term trends in competitiveness. However, during the past five years the trend in competitiveness for both oranges and orange juice has been negative.

Apple chain

The whole apple chain in South Africa is highly competitive internationally. Apple juice, however, shows a dramatic decline in competitiveness from 2001 to 2002. Although apples and apple juice have positive long-term trends in competitiveness, the negative trends during the past ten years in competitiveness must be a cause for some concern.

Apricot chain

The apricot chain in South Africa is highly competitive internationally with RTA values above four. Apricots and dry apricots have positive trends in competitiveness in the long

run. Apricots indicated a decrease in competitiveness for the past five years. Dry apricots, on the other hand, show a positive trend in competitiveness.

Asparagus chain

The asparagus chain in South Africa is marginally competitive internationally. Asparagus have a positive long-term trend in competitiveness, but a negative short-term trend in competitiveness for the past ten and five years, respectively.

Avocados chain

Even though the avocados chain in South Africa has indicated negative trends in competitiveness for the past twenty-three years, the past ten years and the past five years, respectively, it is still very competitive internationally. The long-run trend in competitiveness, from 1961 to 2002, is still positive.

Green beans chain

The green beans chain in South Africa is marginally competitive internationally, with positive trends in competitiveness in the long-term as well as the short-term.

Dry beans chain

The dry beans chain in South Africa is not internationally competitive. It demonstrates positive trends in competitiveness, however, for the past ten years, from 1993 to 2002, and for the past five years, from 1998 to 2002.

Banana chain

The banana chain in South Africa is marginally competitive internationally, with positive trends in competitiveness in the long-term as well as in the short-term.

Cabbage chain

The cabbage chain in South Africa is marginally competitive internationally, with positive trends in competitiveness in the long-term, as well as in the short-term.

Carrot chain

The carrot chain in South Africa is marginally competitive internationally, with positive trends in competitiveness in the long-term as well as in the short-term.

Chillies and peppers chain

The chillies and peppers chain in South Africa is marginally competitive internationally, with positive trends in competitiveness in the long-term. The last five years, however, demonstrated a negative trend in the competitiveness of chillies and peppers in South Africa.

Coffee chain

The coffee chain in South Africa is marginally (but on the negative side) competitive internationally. The whole chain also shows negative long-term trends in competitiveness, as well as negative trends for the last five years.

Garlic chain

The production of garlic in South Africa is marginally competitive internationally, with negative trends in competitiveness in the long-term as well as in the short-term.

Grapefruit and pomelos chain

The grapefruit and pomelos chain in South Africa is highly competitive internationally. Both grapefruit and grapefruit juice have positive trends in competitiveness in the long-term as well as in the short-term.

Grapes chain

South Africa's whole grape chain is highly competitive internationally, but the primary product (grapes) is more competitive than the processed products (grape juice and raisins). Grapes show positive trends in competitiveness, except for the past five years. Grape juice and raisins have positive trends in competitiveness in the long-term, as well as in the short-term.

Wine chain

Wine produced in South Africa is highly competitive internationally. The wine chain also shows positive trends in competitiveness in the long run and short run. The National Agricultural Marketing Council's (2005) report on the competitiveness of the agricultural sector in South Africa stated that the wine sector has been one of the big success stories in South Africa over the last 10 years. This is also confirmed by a resent study by Esterhuizen & Van Rooyen (2005) into the competitiveness of the South African wine industry.

Honey chain

The honey chain in South Africa is marginally (but on the negative side) competitive internationally. Honey also demonstrates negative long-term trends in competitiveness as well as negative trends for the last five years.

Hops chain

The hops chain in South Africa is marginally (but on the negative side) competitive internationally. Hops illustrate positive trends in competitiveness for the last five years as well as in the long run.

Kiwi fruit chain

The kiwi fruit chain in South Africa is marginally (but on the negative side) competitive internationally. Kiwi fruit is, however, a relatively new product to be commercially produced in South Africa. Kiwi fruit shows a negative trend in competitiveness the past ten and five years.

Lemons and lime

The lemons and lime chain in South Africa are highly competitive internationally, with positive trends in competitiveness in the long-term as well as the short-term.

Lettuce chain

The lettuce chain in South Africa is marginally competitive internationally, with positive trends in competitiveness in the long-term as well as in the short-term.

Mangoes chain

The mangoes chain in South Africa is highly competitive internationally, with positive trends in competitiveness in the long-term. There is a negative trend in competitiveness for the period 1993 to 2002. It seems, however, as if, in the last five years, this negative trend is changing to a positive one.

Mushroom chain

The mushroom chain in South Africa is marginally competitive internationally. There is a decrease in competitiveness when moving from the primary to the processed products in the value chain.

Mushrooms, the primary product of the chain, show positive trends in competitiveness in the long run as well as for the last five years. From 1993 to 2002 it has, however, a negative trend. Dried mushrooms' long-term as well as short-term trends in its competitiveness status are positive. Canned mushrooms show a positive trend in competitiveness for the last five years.

Olive chain

Olives preserved and oil of olive from South Africa is marginally competitive internationally. Oil of olives has a negative trend in competitiveness in the short run as well as in the long run. Preserved olives demonstrate a positive trend in competitiveness for the last five years but a negative trend in competitiveness in the long-term.

Onions chain

The onions chain is marginally competitive, while dried onion production is internationally competitive. There is an increase in competitiveness in the value chain when moving from fresh onions to dried onions. Both products in the chain have negative trends in competitiveness for the last five years and for the period 1961 to 2002. However, both products in the chain have positive trends in competitiveness for the periods 1980 to 2002 and from 1993 to 2002.

Papaya chain

The papaya chain in South Africa is marginally competitive internationally. Papayas have a decreasing trend in its competitiveness status for the last five years. From 1980 to 2002 and from 1993 to 2002 the trend was, however, positive.

Peach and nectarine chain

The peach and nectarine chain in South Africa are competitive internationally, with positive trends in competitiveness in the long-term. From 1998 to 2002 the competitiveness status of peaches and nectarines showed a negative trend.

Pear chain

The pear chain in South Africa is highly competitive in the international arena. However, its competitiveness status demonstrates a decreasing trend over the short run as well as the long run.

Pea chain

Fresh peas are marginally competitive internationally, while dried peas are not competitive. Fresh peas have positive trends in competitiveness in the short and long run. Dried peas have decreasing trends in competitiveness in the short- and long-term.

Pineapple chain

South Africa's pineapple chain is very competitive in the international arena. The value adding process from primary to processed product is also competitive. The primary product in the chain, pineapples, indicated a positive trend in competitiveness from 1980 to 2002, but a negative trend in competitiveness from 1998 to 2002. Canned pineapples have a positive trend in competitiveness from 1993 to 2002, but negative trends in the

long run and for the last five years. Pineapple juice showed positive trends in competitiveness for the last five years, but it has a negative long-term trend in competitiveness.

Plum chain

The plum chain in South Africa is highly competitive globally. The plum chain also has a positive trend in competitiveness in the long run and short run, except for the last five years from 1998 to 2002. Dried plums are marginally competitive, with positive trends in competitiveness the last five years and in the long run.

Strawberry chain

The strawberry industry in South Africa is marginally competitive globally. It demonstrates positive trends in competitiveness from 1961 to 2002, from 1993 to 2002 and for the last five years. It has, however, a negative trend in competitiveness from 1980 to 2002.

Watermelon chain

The watermelon industry in South Africa is marginally competitive internationally. The watermelons chain has positive trends in competitiveness from 1961 to 2002, from 1980 to 2002 and from 1993 to 2002. In the last five years, however, there was a decreasing trend in the ability of the watermelons chain to compete.

Sweet potatoes chain

The sweet potatoes chain in South Africa is relatively competitive internationally. Sweet potatoes show an increasing trend in competitiveness in the long-run. It is, however, a concerning factor that in the short run there is a decreasing trend in the competitiveness of sweet potatoes produced in South Africa.

Tea chain

The tea industry in South Africa is marginally competitive internationally. However, it shows a positive trend in competitiveness in the long run as well as in the short run.

Egg chain

The whole egg chain in South Africa is relatively competitive internationally. There is, however, a decrease in competitiveness when moving from the primary to the value-added products in the value chain. Hen eggs (the primary product) show a definite increase in competitiveness over the past twenty years. Eggs liquid and eggs liquid dried have negative long-term trends in competitiveness, but definite positive short-term trends in competitiveness. Eggs dry whole yolks are marginally competitive internationally with positive long-term trends in competitiveness over the last five years.

Chicken chain

The chicken chain in South Africa is marginally competitive internationally. There is an increase in competitiveness when moving from chicken meat to canned chicken in the value chain. Chicken meat shows negative long-term trends in competitiveness. During the last five years, however, there has been a positive trend in the competitiveness of chicken meat produced in South Africa. Canned chicken also has negative long-term trends in competitiveness, with a positive trend in competitiveness for the last ten years.

Beef meat chain

The beef meat chain in South Africa is marginally competitive internationally. Beef dried salt smoked and beef preparations have negative short-term trends in competitiveness. The rest of the chain has positive short-term trends in competitiveness. The whole beef meat chain, however, shows a negative long-term trend in competitiveness.

Milk chain

The whole milk chain in South Africa is marginally competitive internationally, with a slight decreasing trend in competitiveness when moving from the primary to the processed product in the value chain. Milk (primary product) has a positive trend in competitiveness over the long run and a positive trend in competitiveness over the short run.

Skimmed milk and dry whole milk have positive trends in competitiveness, except for the last five years. Dry skimmed milk has a positive long-term trend in competitiveness, but negative trends in competitiveness during the last 20 years. The production of butter of cow's milk in South Africa has a negative trend in competitiveness over both the long and short run. The production of cheese shows an increase in competitiveness for the last ten and five years, respectively.

Fresh cream and chocolate products have negative trends in competitiveness during the last five years but it demonstrates positive long term trends in competitiveness. Ice cream and yoghurt production is marginally competitive internationally. Ice cream production, however, shows positive trends in competitiveness for the last ten and five years. Yoghurt production shows negative trends in competitiveness for the last ten and five years.

Wool chain

The whole South African wool chain is highly competitive internationally. There is a decrease in competitiveness when moving from greasy wool to the clean product in the chain. Wool scoured, however, shows a positive trend in competitiveness from 1980 onwards. Wool greasy has negative short-term and long-term trends in competitiveness.

Mohair chain

The mohair chain is the most competitive chain in the South African agribusiness sector. Hair fine was the most competitive product in the agribusiness sector of South Africa in 2002. In 2001 and 2000 it was coarse hair. There is also an increase in competitiveness when moving from the primary to the more processed products in the value chain.

Hair carded and combed has positive long-term but negative short-term trends in competitiveness. Hair coarse's competitiveness status shows positive trends in competitiveness, except for the last five years. Fine hair has a positive trend in competitiveness from 1980 onwards.

Sheep meat chain

The South African sheep meat chain was generally marginally competitive in 2002. The chain, however, was uncompetitive in 2001 and 2000. The sheep meat chain also show negative trends in competitiveness, except for the last five years.

Leather chain

Hides and skins, the primary product in the leather chain is relative competitive. The rest of the leather chain is, however, only marginally competitive. Hides and skins and hides wet salted have negative long-term trends in competitiveness, but positive trends for the last five years. Hides dry-salted has an increasing long-term competitive trend, but a decreasing trend in competitiveness over the last twenty years. The production of leather in South Africa has negative trends in competitiveness from 1961 to 2002 and also from 1993 to 2002. The trend in competitiveness from 1980 to 2002 is, however, positive and also the trend from 1998 to 2002.

Pork meat chain

The whole pork meat chain in South Africa is marginally competitive internationally. There is, however, an increase in competitiveness when moving to the more value added products in the chain. The whole pork meat chain demonstrates negative trends in competitiveness for the period 1961 to 2002. Pork meat and pork sausages show positive trends in competitiveness for the last five years.

4.5 CONCLUSION

The analyses above described the degree of competitiveness for the agribusiness sector as a whole in South Africa, as well as within and amongst agro-food supply chains. The following features are important:

(i) **Competitiveness status** : From the analysis above it is evident that the South African agribusiness sector is generally rated marginally as far as international competitiveness is concerned. Table 4.4 summarises the competitiveness of the primary products and Table 4.5 summarises the competitiveness of the value added products. From the Tables it is clear that most products' competitiveness status is classified as marginal.

This implies that minor adjustments related to factors influencing the competitiveness status can contribute to changing the status from negative to positive. It will, however, be important to identify the particular set of factors and supply chain interactions required to facilitate the upgrade.

Table 4.4: The competitiveness of primary products in the agribusiness sector of South Africa

Competitive (+)	Marginal	Not Competitive (-)
Maize; Sugar; Groundnuts; Oranges; Apples; Grapes; Pineapples; Grapefruit and pomelos; Lemons and lime; Mangoes; Avocados; Pears; Apricots; Peaches and nectarines; Plums; Sweet potatoes; Eggs; Wool; Mohair; Hides and skins	Wheat; Potatoes; Soybeans; Sunflower seed; Sorghum; Tobacco; Tomatoes; Asparagus; Green beans; Cabbages; Carrots; Chillies and peppers; Coffee; Garlic; Honey; Hops; Kiwi fruit; Lettuce; Milk; Pork; Onions; Olives; Papayas; Mushrooms; Peas; Bananas; Beef; Strawberries; Watermelons; Tea; Chicken	Cotton seed; Barley; Dry beans; Mutton and lamb

Source: Own calculations based on RTA indexes

Table 4.5: The competitiveness of value added products in the agribusiness sector of South Africa

Competitive (+)	Marginal	Not Competitive (-)
Wheat flour; Flour of Maize; Bran of maize; Oil of maize; Sugar refined; Groundnuts shelled; Groundnut oil; Sunflower oil; Cigarettes; Essential oils; Orange juice; Apple juice; Dry apricots; Grape juice; Wine; Pineapple canned; Pineapple juice; Grapefruit juice; Dry onions; Eggs liquid; Wool scoured; Hair coarse;	Macaroni; Pastry; Bread; Breakfast cereals; Potatoes frozen; Flour of potatoes; Sugar confectionery; Maple sugar and syrups; Soya sauce; Cake of groundnuts; Prepared groundnuts; Margarine; Cotton carded combed, Cotton linter; Beer of barley; Cigars cheroots; Tomato juice; Tomato paste; Peeled tomatoes; Coffee extracts; Coffee roasted; Canned mushrooms; Dried mushrooms; Oil of olives; Plum dried; Eggs liquid, dried; Eggs dry whole yolks; Canned chickens; Beef prepared; Dry cow milk; Butter; Cheese; Fresh cream; Ice cream; Yoghurt; Leather; Hides dry slated; Hides wet salted; Pork prepared;	Bran of wheat; Soya bean oil; Soya bean cake; Sunflower cake; Oil of cotton seed; Cake of cotton seed; Cotton lint; Malt of barley; Peas dry;

Source: Own calculations based on RTA indexes

(ii) **Variation between value chains:** The generalised classification of the agribusiness sector as having the status of marginally competitive, disguises the varying rates of competitiveness between the different value chains within this sector. From Table 4.4 and Table 4.5 it is clear that South Africa is competitive in the production, marketing and selling of maize, groundnuts, most fruits, wool, mohair, wine, fruit juices, flour of maize and flour of wheat. South Africa is not competitive in the cotton, soybeans, dry beans and mutton and lamb value chains.

This finding is inline with the NAMC (2005) conclusion on the competitiveness of the South African agricultural industry. The NAMC (2005: 17) found that South Africa is clearly competitive in most of the main fruit production areas such as deciduous fruit, citrus, exotic fruit and wine. These products are considered to have relatively high values in international markets. The NAMC also found that South Africa's competitiveness position is much weaker (and in some cases nearly non-existent) in areas of more commodity-, price- and scale-driven industries. These industries have also been subject to much higher levels of market protection and distortion over the years in all major international markets such as the EU, America and Japan.

(iii) **Decreasing competitiveness in the supply chains**: In Table 4.6 the inter-chain competitiveness of selected chains is shown. The table is divided into six blocks. The first row indicates an increasing trend in competitiveness when moving from the primary to the value added products in the chain. The second row indicates a decreasing trend in the competitiveness of value-adding activities in the chain. The columns show the competitiveness of the primary product in the chain and can be competitive (+), marginal or negative (-).

The primary products of the maize, apple, pineapple, grapefruit and mohair chains' are competitive and there is an increasing trend in competitiveness of value-adding in the chain. The wheat, tobacco, pork and chicken meat chains are marginal competitive. These chains, however, also show an increase in

competitiveness when moving from the primary to the value added products in the chain. However, most value chains (sugar, groundnuts, oranges, grapes, wool, plums, eggs, hides and skins, potatoes, sunflower, tomatoes, milk, soybeans) indicate a decreasing trend in competitiveness in the value adding activities of the chain.

Table 4.6: Inter-chain competitiveness

COMPETITIVENESS OF VALUE-ADDING IN CHAIN	COMPETITIVENESS OF PRIMARY PRODUCT		
	+	*MARGINAL*	-
Increasing ↑ T R E	Maize, Apples, Pineapple, Grapefruit, Mohair	Wheat, Tobacco, Chicken meat, Pork	Cotton, Barley
N D ↓ *Decreasing*	Sugar, Groundnuts, Oranges, Grapes, Wool, Plums, Hen eggs, Hides and skins	Potatoes, Sunflower, Tomatoes, Milk, Soybeans, Mushrooms, Olives, Peas, Beef	

Source: Own calculations based on RTA indexes

This implies that beneficiation or "value adding" opportunities in the South African agribusiness sector are restricted. The primary products in the sector, on the other hand, are relative or marginally competitive. One possible explanation for this could be the high rates of return recorded for the applications of technology at farm level for most primary commodities (Thirtle, Townsend, Amadi, Lusigi & Van Zyl, 1998). Thirtle *et al* (1998) have calculated in the late nineties the rates of return on research and development (R&D) done by the Agricultural Research Council in South Africa (see Table 4.7).

The rate of return (ROR) is a discounted evaluation measure for single projects or sets of projects. It is the discount rate that equates the net present worth of the

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incremental net benefit stream, or incremental cash flow, to zero. The ROR represents the maximum interest that a project can pay for the resources used, if the project is to recover its investment and operating expense and still break even when valued at economic shadow values (Wessels, 1998).

Table 4.7: Rates of return for research and development done by the Agricultural Research Council

Commodities	ROR %
Maize	29-39
Wheat	28-34
Sorghum	50-63
Groundnuts	50
Tobacco	50-53
Sweet potatoes	21
Wheat aphid control	35-49
Animal production	11-16
Animal health	36+
Wine grapes	40-60
Bananas	50
Deciduous fruit	78
Lachenalia	6.5-12
Protea	8

Source: Thirtle *et al*, 1998

In Figure 4.2 the high correlation (R^2 = 84.54%) between competitiveness and high rate of return (ROR) on investment in research and technology is confirmed for cattle, wheat, sweet potatoes, maize, groundnuts, grapes and deciduous fruits. The higher the ROR on investment in research, development and technology, the higher the competitiveness index of that specific industry.

The link between research and development (R&D) and competitiveness was also confirmed in a recent study (Esterhuizen, Van Rooyen & D' Haese, 2001) to determine the major factors influencing the competitiveness of agribusinesses:

78.57% of the agribusinesses investigated indicated that high cost of technology is currently a constraint to their competitive success. Half of the respondents indicated that the cost of knowledge (research) is a constraint to their competitive success. Only 22% of the respondents indicated that the availability and quality of technology are an enhancement to their competitiveness and only 33.33% of agribusinesses indicated that the availability and quality of research are enhancing their competitive success.
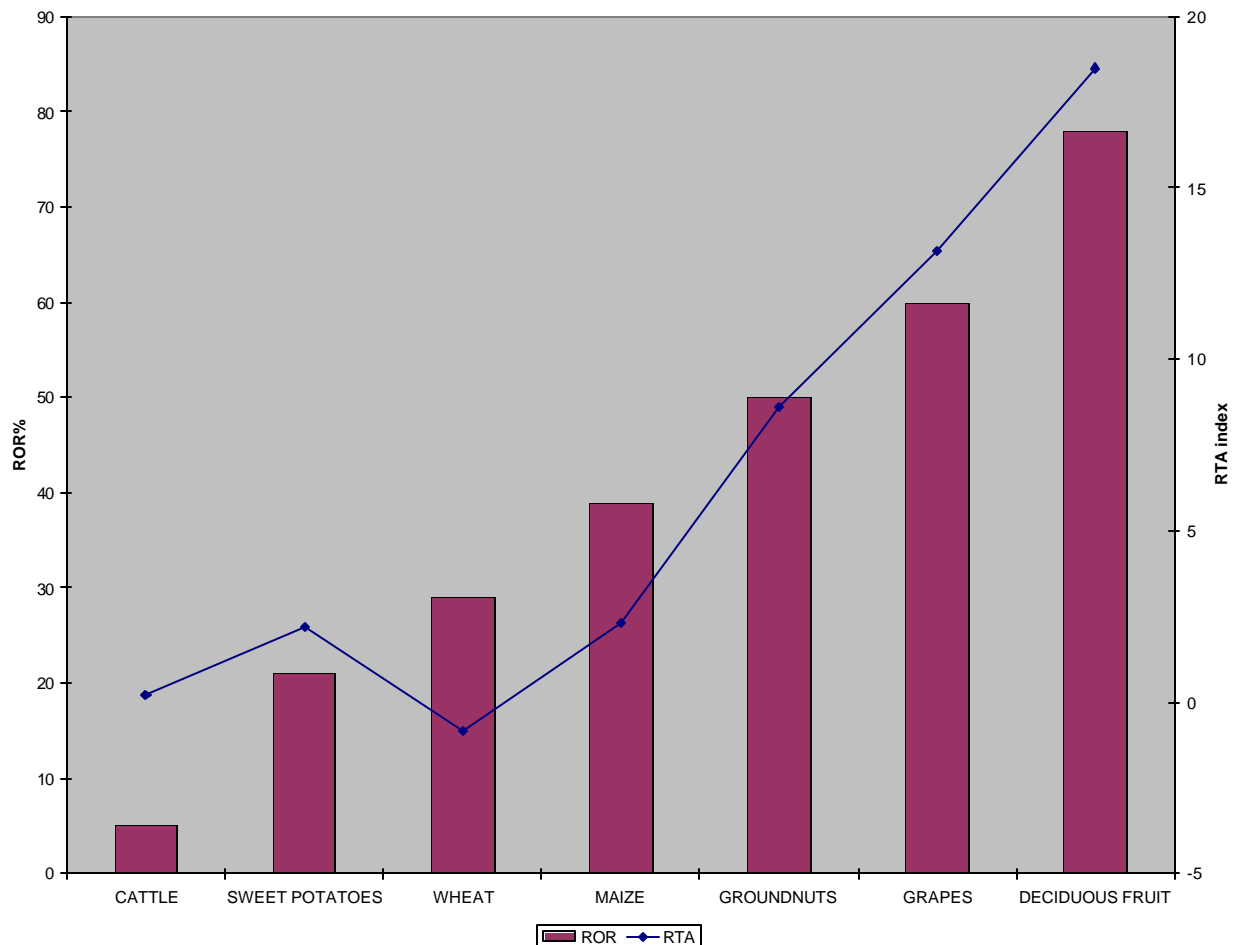
Figure 4.2: The correlation between ROR and competitiveness in the agribusiness sector of South Africa

Source: Own calculations based on data from Thirtle *et al*, 1998 and the agribusiness sector's competitiveness index

These statements must be viewed against a background of the historical focus of public sector expenditure, being largely on farm level R&D. Value added activities higher up in the supply chain have been somewhat ignored within agricultural R&D expenditures. Government is also currently reducing their investment in research and development activities. The Agricultural Research Council (ARC) responsible for primary and secondary R&D in the agricultural sector has experienced a decline in parliamentary grant since 1994. This grant represented more than 90% of R&D investment in agriculture. It has also been observed that agribusinesses generally invest very little towards R&D. A technological innovation crisis for South African agriculture may very well be in the making. It will, however, be important to "discover" the various underlying reasons for non-competitiveness in each chain. Does it relate to a lack of technological innovation, unproductive labour, high input cost, low quality or maybe government trade policy, etc?

(iv) **Positive trends over time in competitiveness:** Table 4.8 indicates the long-term and short-term trends in competitiveness of the primary products in the agribusiness sector of South Africa. The long-term trends (1961 to 2002) are indicated in the columns and the short-term (1993 to 2002) trends in the rows. If a product has both a positive short-term and long-term trend, the product is classified as a "star". Stars are products that are able to adapt over time which leads to a sustainable competitive advantage that is updated by innovation and research and development.

If the product has a positive long-term trend, combined with a negative short-term trend, it is classified as "struggling". These products are slow to adapt to the new, more open, economy and they need to update their competitive advantage. If the product has a negative long-term trend combined with a positive short-term trend, the product is classified as "recovering". These products have changed their destination and have adapted to the new global environment. They have developed new competitive futures. If a product has a negative long-term as well

as short-term trend, it is classified as a "crisis". Serious new development and research need to be done to save these products in the global arena.

Most of the primary products produced in the agribusiness sector of South Africa can be classified as "stars". These products show positive long-term and short-term trends in competitiveness. Many of the products can also be classified as "recovering". This is good news for the agribusiness sector in South Africa and it indicates the presence of positive trends in the competitiveness of the primary products in the sector.

However, there are products that are "struggling" and products that are in a "crisis'. Products such as asparagus, avocados, mangoes, mushrooms, peas, sweet potatoes and mohair can be classified as "struggling", while products such as maize, sorghum, barley, apples, garlic, olives, pears, chickens, sheep, hides and skins can be classified as to be in a "crisis". Serious new development, research and marketing need to be done to improve the ability of these products to compete in the global arena.

In Table 4.9 the trends in the competitiveness of the value-added products in the agribusiness sector are indicated. Again, most of the products show positive trends in competitiveness. There are, however, also products that can be classified as "struggling" and to be in a "crisis".

Value added products that are "stars" include the following: Bread, maize flour, flour of potatoes, sugar refined, margarine, cotton carded combed, cotton linter, cigarettes, cigars, cheroots, essential oils, orange juice, grape juice, raisins, wine, dried mushrooms, fresh cream, cheese, dry whole milk, hair coarse.

Value added products that are "recovering" include: bran of wheat, macaroni, breakfast cereals, bran of maize, oil of maize, sugar confectionery, groundnuts shelled, cake of groundnuts, oil of sunflower, malt of barley, coffee extracts, dry

onions, dry peas, canned pineapples, eggs liquid, canned chicken, wool scoured and prepared pork.

The following value added products are "struggling": flour of wheat, oil of groundnuts, beer of barley, apple juice, dried apricots, dried plums, eggs dry whole yolk, dry skimmed milk, hides dry salted. Pastry, oil of soybeans, cake of soybeans, cake of sunflower, oil of cotton seed, cake of cotton seed, cotton lint, roasted coffee, canned mushrooms, olives oil, pineapple juice, butter, hides wet salted and leather can be classified as to be in a "crisis".

Table: 4.8 Trends in the competitiveness of primary products

		Long term trend (1961 – 2002) in competitiveness	
		Positive (+)	Negative (-)
Short term trend (1993 –2002) in competitiveness	Positive (+)	**Stars:** Potatoes; Groundnuts; Sugar, raw; Tobacco; Tomatoes; Oranges; Apricots; Green beans; Bananas; Cabbages; Carrots; Chillies and peppers; Grapes; Lemons and lime; Lettuce; Peaches and nectarines; Plums; Strawberries; Watermelons; Tea; Milk	**Recovering:** Wheat; Soybeans; Sunflower seeds; Cotton seeds; Dry beans; Coffee; Grapefruit; Honey; Onions; Pineapples; Eggs; Beef; Wool; Pork
	Negative (-)	**Struggling:** Asparagus; Avocados; Mangoes; Mushrooms; Peas; Sweet potatoes; Mohair	**Crisis:** Maize; Sorghum; Barley; Apples; Garlic; Olives; Pears; Chickens; Sheep; Hides and skins;

Source: Own calculations based on RTA indexes

Table 4.9: Trends in the competitiveness of value-added products

		Long term trend (1961 – 2002) in competitiveness	
		Positive (+)	Negative (-)
Short term trend (1993 –2002) in competitiveness	Positive (+)	**Stars:** Bread; Flour of maize; Flour of potatoes; Sugar refined; Margarine; Cotton carded combed; cotton linter; Cigarettes; Cigars cheroots; Essential oils; Orange juice; Grape juice; Raisins; Wine; Dried mushrooms; Fresh cream; Cheese; Dry whole milk; Hair coarse	**Recovering:** Bran of wheat; Macaroni; Breakfast cereals; Bran of maize; Oil of maize; Sugar confectionery; Groundnuts shelled; Cake of groundnuts; Oil of sunflower; Malt of barley; Coffee extracts; Onions, dry; Peas, dry; Pineapples, canned; Eggs liquid; Canned chicken; Wool scoured; Prepared pork
	Negative (-)	**Struggling:** Flour of wheat; Oil of groundnuts; Beer of barley; Apple juice; Dried apricots; Plums, dried; Eggs dry whole yolk; Dry skimmed milk; Hides dry salted	**Crisis:** Pastry; Oil of soybeans; Cake of soybeans; Cake of sunflower; Oil of cotton seed; Cake of cotton seed; Cotton lint; Coffee roasted; Canned mushrooms; Oil of olives; Pineapple juice; Butter; Hides wet salted; Leather

Source: Own calculations based on RTA indexes

(v)   **Agribusiness "winners" and "losers":** Table 4.10 illustrates the trends and the status in the competitiveness of the primary products in the agribusiness sector of South Africa. As previously explained, the matrix is divided into six blocks. The competitiveness of the products, with 1993 as the base year for comparison, is shown on the vertical axis and the trend in competitiveness for the period 1993 to 2002 on the horizontal axis. If the competitiveness of the product in the agribusiness sector in 1993 was positive and there was an increase in competitiveness in the period from 1993 to 2002, the product is classified as a "winner". If an industry was not competitive in 1993, but there was an increase in competitiveness in the period 1993 to 2002, the product is classified as a "turn-around". A "losing" product was not competitive in 1993 and has a decreasing trend in competitiveness from 1993 to 2002, etc.

From the Table 4.10 it is clear that most of the products have positive trends in competitiveness from 1993 to 2002. The following primary products in the agribusiness sector can be classified as "winners": Sugar, groundnuts, oranges, apricots, grapefruit, grapes, lemons, pineapple, plums and wool. Maize, apples, avocados, mangoes, pears, sweet potatoes, mohair and hides and skins are classified as "declining high performers". Wheat, cotton seed, dry beans, tea and beef have turned their competitiveness around. Most of the primary products in the agribusiness sector are busy catching up with the competition. Eggs and peaches have increased their marginal competitiveness status in 1993 to a positive competitiveness status in 2002. No "losers" are identified.

Table 4.10: "Winning" and "losing" primary products in the agribusiness sector of South Africa

<table>
<tr><td colspan="4" align="center">Trends in competitiveness 1993 -2002</td></tr>
<tr><td rowspan="7">Competitiveness in 1993</td><td></td><td>Increase</td><td>Decrease</td></tr>
<tr><td>Competitive</td><td>Winners: Sugar; Groundnuts; Oranges; Apricots; Grapefruit; Grapes; Lemons; Pineapple; Plums; Wool</td><td>Declining high performers: Maize; Apples; Avocados; Mangoes; Pears; Sweet potatoes; Mohair; Hides and skins;</td></tr>
<tr><td>Marginal</td><td>Rising moderate Performers(catch-up): Potatoes; Sunflower; Tobacco; Tomatoes; Soybeans; Green beans; Bananas; Cabbages; Carrots; Chillies and peppers; Coffee; Honey; Lettuce; Onions; Papayas; Peaches; Strawberries; Watermelons; Eggs; Milk; Pork</td><td>Declining moderate Performers: Asparagus; Sorghum; Barley; Garlic; Hops; Mushrooms; Peas; Chicken meat; Mutton and lamb;</td></tr>
<tr><td>Not Competitive</td><td>Turn-around: Wheat; Cotton seed; Dry beans; Tea; Beef;</td><td>Chronic underperformers (losers):</td></tr>
</table>

Source: Own calculations based on RTA indexes

Table 4.11 describes the trends and the status in the competitiveness of value added products in the agribusiness sector of South Africa. From Table 4.11 it is clear that most of the products have positive trends in competitiveness from 1993 to 2002. Flour of maize, groundnuts shelled, grapefruit juice, grape juice, raisins, pineapples canned, scoured wool, and coarse mohair are classified as "winners".

Flour of potatoes, macaroni, breakfast cereals, oil of maize, frozen potatoes, sugar refined, sugar confectionery, maple sugar and syrups, prepared groundnuts, margarine, cigarettes, cigars cheroots, tomato paste, essential oils, orange juice, coffee extracts, wine, dried mushrooms, eggs liquid, canned chicken, boneless beef and veal, dry whole milk, cheese, cream, ice cream, pork prepared and pork sausages can be classified as "rising moderate performers". Oil of maize, sugar refined, essential oils, orange juice, wine and eggs liquid have increased their marginal competitiveness status in 1993 to a positive competitiveness status in 2002.

Flour of wheat, oil of groundnuts, beer of barley, apple juice, dried apricots, pineapple juice, eggs dry whole yolks, hides dry salted and hides wet salted are classified as "declining high performers". Bran of wheat, bran of maize, cake of groundnuts, oil of sunflower, cotton carded and combed, cotton linter, malt of barley and dried peas have turned their ability to compete around. Oil of cotton seed, cake of cotton seed and cotton lint are classified as "losers" in the agribusiness sector of South Africa.

Table 4.11: "Winning" and "losing" value-added products in the agribusiness sector of South Africa

<table>
<tr><th colspan="4">Trends in competitiveness 1993-2002</th></tr>
<tr><td rowspan="7">Competitiveness in 1993</td><td></td><td>Increase</td><td>Decrease</td></tr>
<tr><td>Competitive</td><td><u>Winners</u>: Flour of maize; Groundnuts shelled; Grapefruit juice; Grape juice; Raisins; Pineapples canned; Wool, scoured; Mohair, coarse;</td><td><u>Declining high performers</u>: Flour of wheat; Oil of groundnuts; Beer of barley; Apple juice; Dry apricots; Pineapple juice; Eggs dry whole yolks; Hides dry salted; Hides wet salted;</td></tr>
<tr><td>Marginal</td><td><u>Rising moderate</u>
<u>Performers(catch-up):</u> Flour of potatoes; Macaroni; Breakfast cereals; Oil of maize; Potatoes, frozen; Sugar refined; Sugar confectionery; Maple sugar and syrups; Prepared groundnuts; Margarine; Cigarettes; Cigars cheroots; Tomato paste; Essential oils; Orange juice; Coffee extracts; Wine; Dried mushrooms; Eggs liquid; Eggs liquid, dried; Canned chicken; Beef and veal, boneless; Dry whole milk; Cheese; Cream; Ice cream; Pork prepared; Pork sausages;</td><td><u>Declining moderate</u>
<u>Performers</u>: Pastry; Oil of soybeans; Cake of soybeans; Soya sauce; Cake of sunflower; Tomato juice; Peeled tomatoes; Coffee roasted; Canned mushrooms; Plums dried; Beef preparations; Beef dried salt smoked; Dry skim milk; Butter; Chocolate products; Yoghurt; Leather; Bacon-ham of pigs;</td></tr>
<tr><td>Not Competitive</td><td><u>Turn-around</u>: Bran of wheat; Bran of maize; Cake of groundnuts; Oil of sunflower; Cotton carded and combed; Cotton linter; Malt of barley; Dried peas;</td><td><u>Chronic underperformers</u>
<u>(losers):</u> Oil of cotton seed; Cake of cotton seed; Cotton lint;</td></tr>
</table>

Source: Own calculations based on RTA indexes

An industry that is not competitive will not attract investment, and vice versa. In a study of 400 agribusinesses, a correlation analysis indicated a correlation coefficient of 78% between investment and competitiveness - which confirms this phenomenon (Van Rooyen & Esterhuizen, 2000). In Figure 4.3, this pattern is illustrated for the South African agribusiness sector.

Investment levels closely follow the aggregate competitiveness index of the agribusiness sector. However, in some years there is a definite lag period. As in

the case of competitiveness, levels of investments have dramatically declined since the early 1980's. This early period is no longer representative of the agribusiness sector within the global economy, and it is thus less relevant. Since 1992, when South Africa entered the reality of the new deregulated and globalised economy, increases in investment and competitiveness has been observed. Trends in investment, however, declined from 1996 to 1999.

This decline in investment can mainly be related due to the sharp increase in real interest rates from 1997 to 1999. However, the impact on competitiveness during this period was not that dramatic, but there was a definite drop in competitiveness from 1997 to 1998 and no growth in competitiveness between 1999 and 2000. The increase in competitiveness in the agribusiness sector during the last three years goes hand in hand with the increase in investment in the sector in the same period. Real investment in the agribusiness sector of South Africa, however, dropped in 2003 – the lag effect of this will probably be a decrease in the competitiveness of the sector in the coming year.
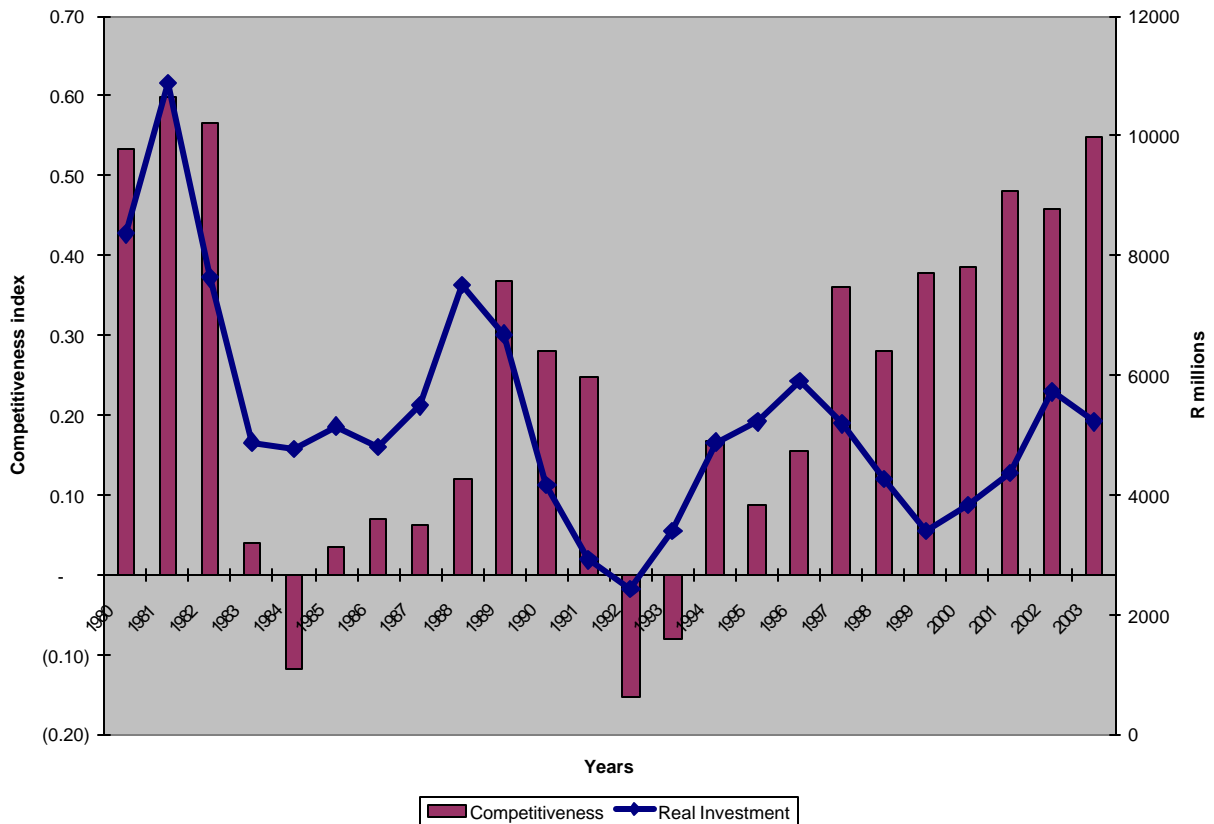
Figure 4.3: The link between competitiveness and investment in the agribusiness sector of South Africa

Source: Own calculations based on data from the National Department of Agriculture (2004) and the agribusiness sector's competitiveness index

Table 4.10 and Table 4.11 can also be used to indicate in which industries new investments are likely be made, if we assume investors will invest in industries that are internationally competitive and have a positive trend in competitiveness that is likely to continue in the years ahead. Such industries in the agribusiness sector of South Africa will be, for example, the **sugar, groundnuts, oranges, apricots, grapefruit, grapes, lemons, pineapple, plums, wool, flour of maize, grapefruit juice, grape juice, raisins, pineapples canned and coarse mohair** industries**.**

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Table 4.10 and Table 4.11 can also be used to indicate the industries in the agribusiness sector where investments are unlikely to be made. These will be industries with a negative competitiveness status as well as a negative trend in competitiveness that is likely to continue in the years ahead, unless new developments and research take place. An example of such an industry is the cotton industry in South Africa.

The next chapter will build on the analyses in this chapter and explore interesting relationships and opportunities for South African agribusinesses locally.

CHAPTER FIVE

PARTNERSHIPS TO COMPETE: THE SOUTH AFRICAN AGRICULTURAL INPUT INDUSTRY AND AGRIBUISNESS SECTOR

5.1 INTRODUCTION

In analysing the competitiveness of the agribusiness sector in South Africa it is imperative that the agricultural input industry is not analysed in mere isolation, but as a part of the total agribusiness system i.e. an agricultural supply chain approach is required. Commentary regarding competitiveness often mistakenly considers only the output side of the agribusiness system ('from farm to table') and thereby ignores the possible impact that the input sector may have on the competitiveness of the agribusiness sector.

In this Chapter the importance of a competitive input industry in a supply chain relationship will first be discussed. The competitiveness measurement of various agricultural input industries will then be determined by using the Relative Trade Advantage method. This status will then be related to the competitive performance of the agribusiness sector in South Africa

5.2 THE IMPORTANCE OF A COMPETITIVE INPUT INDUSTRY IN A SUPPLY CHAIN RELATIONSHIP

A "supply chain perspective" gives a particular definition to agribusiness. The integrated nature of the supply chain requires the consideration of business transactions between all production processes – from the farm, past the farm-gate right up to serving the final consumer.

Consumer behaviour will, together with technology, become the most important driving forces in the agricultural and agribusiness industry in the near future (Zuurbier, 1999). The rapid transmission of consumer demands through the supply chain to primary producers and input suppliers will thus be of great importance if agribusinesses want to compete effectively and add value to their product. The need to comply with consumer demands will also force the producers to put certain demands to input suppliers in terms of environmental, cultural and social requirements. Information flows, research and development and new innovations will become important components to allow supply chains to function effectively and efficiently.

With the advent of biotechnological inventions, together with an increase in the amount of food scares in Europe, consumers will increasingly demand safe food. As a result of this, "traceability" will become an important issue for consumers, as they will demand to know the origin of the product as well as the production process used. These factors clearly require a higher degree of interdependence and integration between the different levels of the food system, including the input system (Boehlje, Akridge & Downey, 1995).

The primary motivation for these integrated systems is to provide more accurate signals to producers and input suppliers as to what the ultimate end user, the consumer, wants in his or her food products. Spot markets will not provide such information effectively and there will inevitably be a decline in spot markets, coupled with an emergence of production contracts to ensure that products comply with the requirements of the consumer (Zuurbier, 1999).

Through this process, one could observe a trend towards integration (or partnerships) between input suppliers, producers and processors in order to ensure that the "supply chain" complies with the requirements of the consumer and experiences a reduction in transaction costs between different functions in the chain. This suggests that, in order to be able to compete in domestic as well as international markets improved co-ordination between all the elements of the agro-food chain will be required of a business system to

serve the needs of the end-consumer. If one of the partners in the chain is not competitive, the rest of the chain will struggle to meet the requirements set by the end-consumer.

This view of factors driving competitiveness is based on the "Porter-diamond" model, where inputs are categorised as one of the elements in the production factor category. The other categories include markets, support industries, firm strategies, government support and chance factors (Porter, 1990).

5.3 AN OVERVIEW OF SELECTED SOUTH AFRICAN AGRICULTURAL INPUT INDUSTRIES

The South African agricultural input industry is well developed and represented and it consists of the following sectors: equipment, including machinery and implements, fertiliser, seeds and chemicals. Activities such as financial services, advice, training etc. can also be viewed as inputs. This Chapter, however, will only focus on farm requisites i.e. equipment, fertiliser and chemicals.

In 2002/03 expenditure by South African farmers on farming requisites amounted to R36 173 million – an increase of 17% from the previous year. In Table 5.1 the individual expenditure in 2002/03 on the major intermediate inputs is illustrated.

Table 5.1: Individual expenditure in 2002/03 on the major intermediate inputs

	Value in 2002/03 (R million)	% of total
Packaging material	2 152,9	5.95%
Fuel	3 893,8	10.76%
Fertilisers	3 719,9	10.28%
Stock and poultry feed	9 058,3	25.04%
Dips and sprays	2 975, 3	8.22%

Source: National Department of Agriculture, 2004

***The equipment industry*:** South Africa has only a small agricultural machinery and implements manufacturing industry, with the majority of equipment and machinery being imported. The tractors that are manufactured in South Africa annually represent only about 5% of the total.

In Figure 5.1 the annual sales of tractors in South Africa is indicated. The high level of tractor sales in the early 1980's represents a period of relatively low interest rates. The agricultural machinery industry in South Africa has experienced an unprecedented change in its business environment during the past two years. Economic factors, such as the dramatic decline and strengthening of the rand, the raise and fall of maize and wheat prices and the decline in lending rates all have had a direct influence on the agricultural machinery business in South Africa (South Africa Agricultural Machinery Association (SAAMA), 2003).
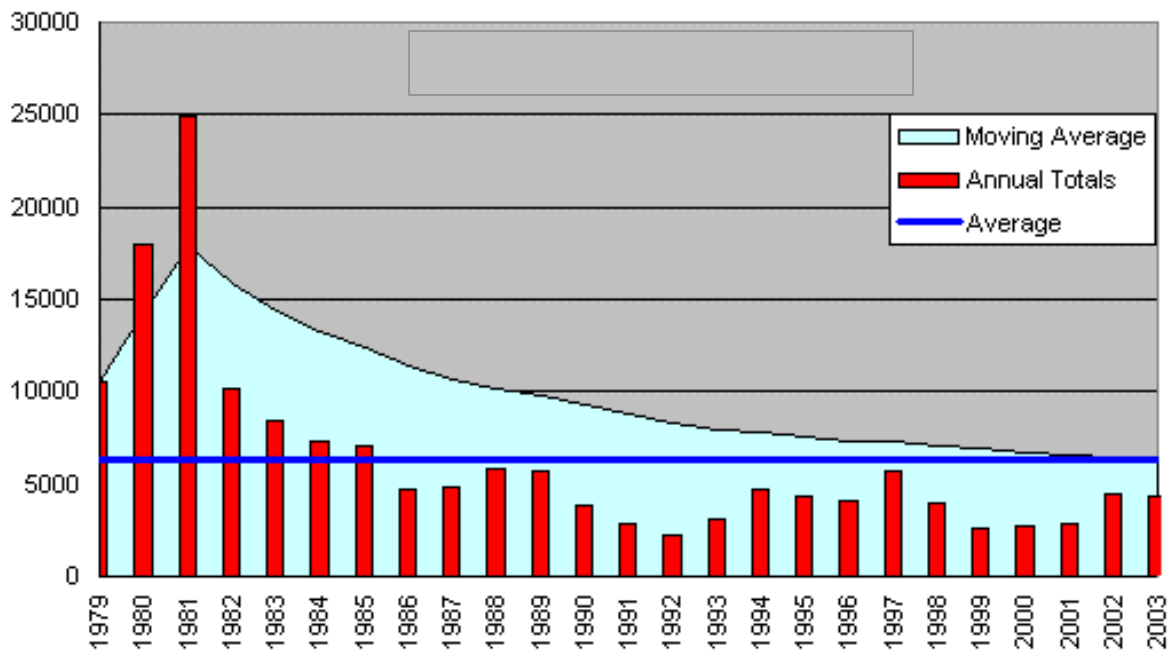
Figure 5.1: Annual sales of tractors in South Africa

Source: South African Agricultural Machinery Association, 2003

The years 2002 and 2003 have experienced a positive trend in tractor and combine sales, with the exception of balers. The sales of the year 2000 closed off at 2 668 tractors, 124 combines and 229 balers and, respectively for the year 2002 (2001 in brackets) at 4 428 (2847) tractors, 174 (103) combines and 204 balers (184). The better unit figures from 2002 can mainly be attributed to the exceptionally high prices of maize, wheat and sunflower that offered the farmer the opportunity to replace old machines. With the strengthening of the Rand, a drop in producer prices and relatively high crop estimates, machinery sales for 2004 were lower than the previous year. Looking forward to the next few years, the situation may not be as rosy, taking into the account the intention of farmers to plant less, the large carry over of stocks, prices of produce and a lower than expected wheat crop. On the positive side, if the Rand remains stable at current levels, lower input costs may encourage farmers to invest (SAAMSA, 2004).

The seed industry: On July 1, 1989 the South African National Seed Organization (SANSOR) was officially designated by government as the authority to manage the Seed Certification Scheme. The organisation has 112 members, including co-operatives and many of the leading international and local seed companies such as Syngenta, Monsanto, Pannar, Mayford, Pioneer Hi-bred and Hygrotech. The organisation has active campaigns to remove levies paid on seed. It was also responsible for the negotiation of a zero tariff for all imported seed (Kirsten, 1999).

The South African Seed Industry maintained a turnover of more than R1.3 billion in 2004 (SANSOR, 2004). This was created primarily by winter and summer grain crops (69%), vegetables (20%), pasture and forage species (9%), with flowers accounting for less than 2%. The local seed industry is currently in a phase of growth, as was also reflected in an increase of 4% in SANSOR membership during the 2003/04 financial year (SANSOR, 2004).

The further strengthening of the local currency had a negative impact on export markets, in particular the horticultural seed industry. However, the open market system continued

to favour the seed trade and most seed companies have now become true global players on the international markets.

The fertiliser industry: The South African fertiliser industry is largely dominated by three primary manufacturers of fertilisers, namely Kynoch (a subsidiary of AECI), Sasol and Omnia (Kirsten, 1999). There is, however, one additional manufacturer namely Indian Ocean Fertilisers located at Richards Bay, which manufactures mainly for the export market. The nitrogenous components required for fertiliser production are derived from ammonia, which is produced by Sasol and AECI. Phosphate rock is locally mined and used in the manufacturing of phosphates by Foskor. Products sold by the fertiliser manufacturers in South Africa include materials prepared from local phosphates, imported components and locally compounded materials. Kynoch, Omnia and Sasol also sell raw materials to a relativly large number of secondary manufacturers of specific fertiliser combinations or products whom often also serve a specific geographical region. Some fertiliser manufacturers, however, import most of their raw materials (Venter, 2003).

The annual consumption of fertilizer in South Africa, on average for the past ten years, is around 788 637 metric tons (FAOSTATS, 2004), which represents a monetary value of over R3.7 billion (National Department of Agricultural, 2004). Of this total, approximately 381 814 metric tons have been imported on average during the past ten years. Fertilisers imports are free - local manufacturers are therefore not protected from foreign competition. In Figure 7.2 the consumption, production, imports and exports of fertiliser in South Africa for a ten years period (1992 – 2002) is illustrated. A large increase in the imports of fertiliser during the past four years can be seen from Figure 5.2.
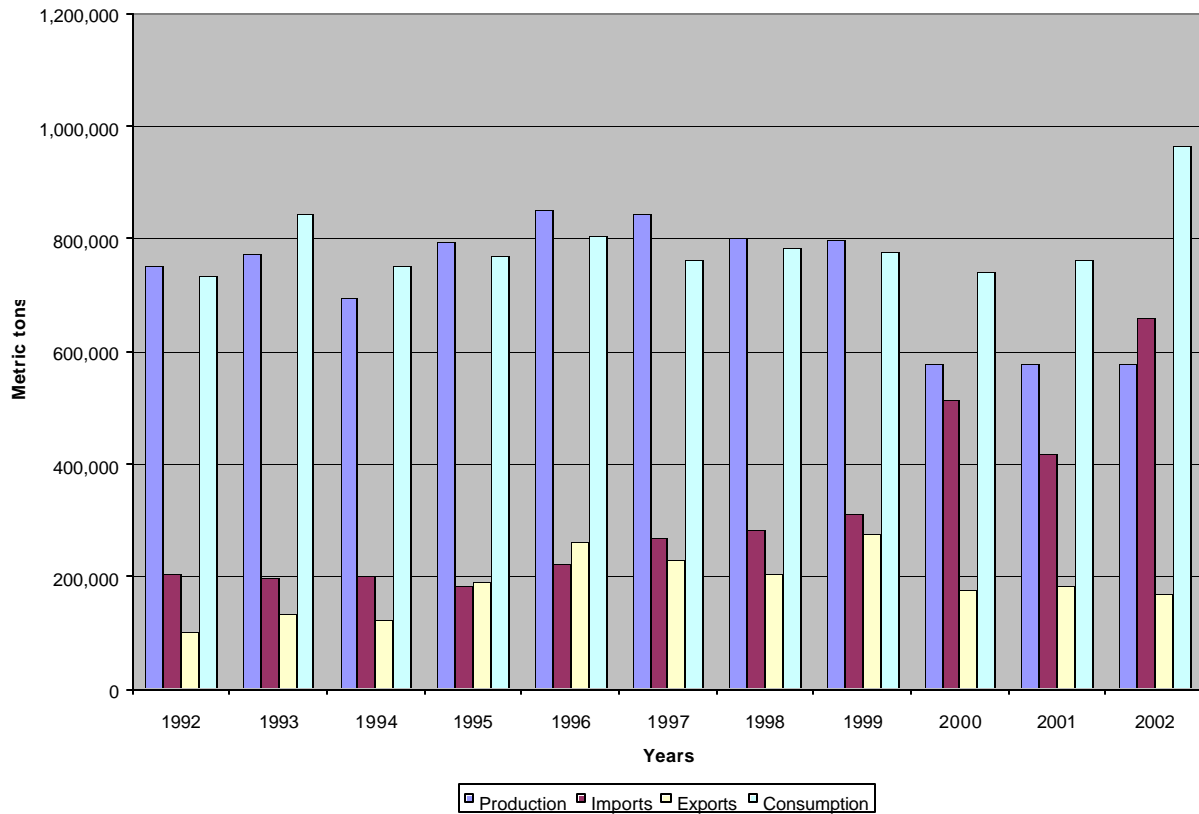
Figure 5.2: The consumption, imports, exports and production of fertiliser in South Africa

Source: FAOSTAT, 2004

The agricultural chemical industry: Agricultural chemicals include crop protection chemicals and animal health products. There is an active market for agricultural and crop protection chemicals including herbicides, insecticides, fungicides and various other associated products in South Africa. A large number of international companies, including Bayer, Novartis, Dow Agro Sciences (who recently acquired Sanachem) Zeneca and Rôhne-Poulenc manufacture and distribute agricultural chemicals in South Africa. Companies active in the animal health sector are ICI, Bayer, Pfizer and Hoechst (Kirsten, 1999).
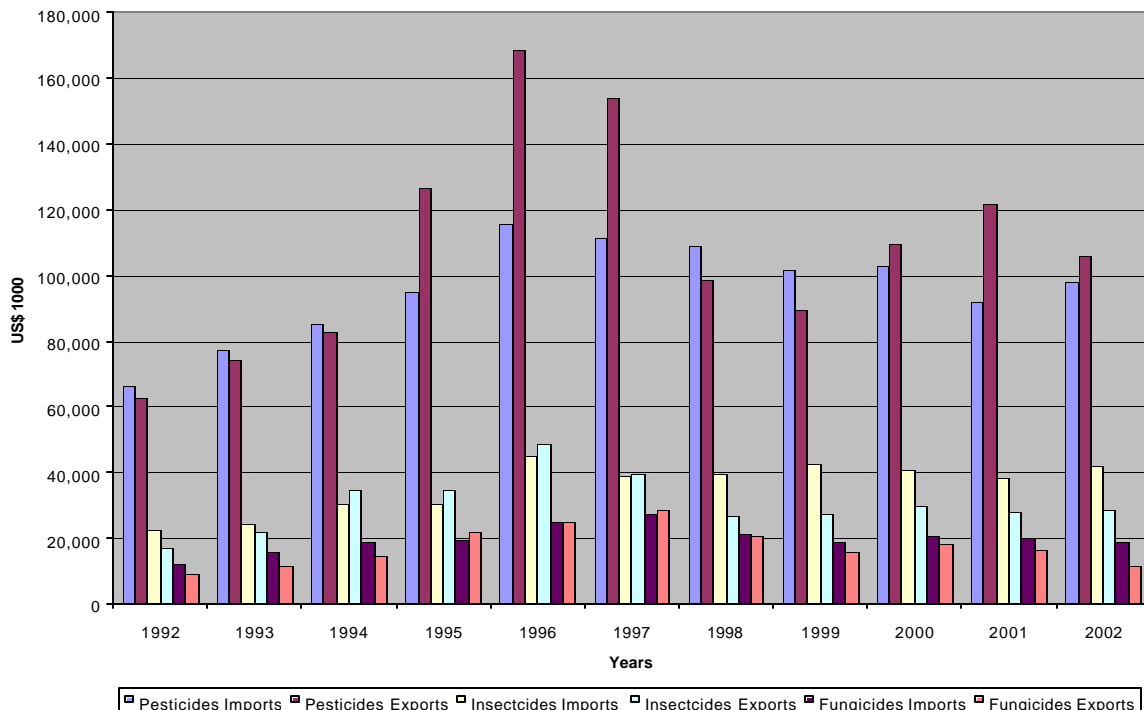
Figure 5.3: The imports and exports of pesticides, fungicides and insecticides for the years 1992 to 2002 by South Africa.

Source: FAOSTAT, 2004

In Figure 5.3 the imports and exports of pesticides, fungicides and insecticides by South Africa are shown for the years 1992 to 2002. Raw materials are largely imported from these companies and manufactured and formulated under license here in South Africa. Some companies have their own manufacturing, formulation and/or packaging plants in South Africa. The products are distributed by large distribution networks and local agents. In total, the agricultural chemical industry in South Africa is worth around R3 billion (National Department of Agriculture, 2004). All agricultural chemicals are imported free of duty into South Africa.

5.4 MEASURING THE COMPETITIVENESS STATUS OF THE SOUTH AFRICAN AGRICULTURAL INPUT INDUSTRY

The RTA analysis (Balassa, 1977, 1989; Volrath, 1991) as described in Chapter two was applied to the following sectors:

Total farming requisites – marginal, but positive trends: According to Table 5.2 it is clear that South African manufacturers of farming requisites as a whole are relatively marginally competitive in the international arena, with an RTA value of –0.38 in 2000, 0.02 in 2001 and a RTA value of –0.68 in 2002. However, total farm requisites showed a positive trend in competitiveness from 1961 to 2002, from 1980 to 2002 and from 1993 to 2002.

Total agricultural machinery – not competitive, but improving: Total agricultural machinery includes tractors, harvesters, and milking machines. South African manufacturers of these products are not very competitive internationally. However, agricultural machinery manifested positive trends in competitiveness from 1961 to 2002, from 1980 to 2002 and from 1993 to 2002.

Tractors – not competitive, but improving: The manufacturing of tractors in South Africa, as one of the most important agricultural machines used by crop farmers, is not very competitive in the international arena. However, there has been a definite positive trend in competitiveness over the long-run and short-run.

Fertiliser – increasingly competitive: South African manufacturers of fertiliser are marginally competitive in the international arena, with RTA values of 0.88 in 2002, 1.19 in 2001 and 0.96 in 2000. Fertiliser manufacturers have a positive trend in international competitiveness in the long-run and have also had one for the past ten years.

Table 5.2: The competitiveness status of the South African primary farming requisites input manufacturers

	RTA 2002	RTA 2001	RTA 2000	Trends 1961-02	Trends 1980 - 02	Trends 1993 - 02
Total farming requisites	-0.68	0.02	-0.38	+	+	+
Total agricultural machinery	-1.94	-0.98	-1.31	+	+	+
Tractors	-3.09	-1.12	-1.76	+	+	+
Fertiliser	0.88	1.19	0.96	+	+	+
Pesticides	0.21	0.61	0.02	+	+	+

Source: Own calculation based on data from FAOSTAT 2003.

Notes: '+' Positive trend; '-' negative trend; Competitive (RTA > 1), marginally competitive (1 > RTA > -1), not competitive (RTA < -1).

Pesticides – marginal with positive trends: Pesticide manufacturers in South Africa are relatively marginally competitive internationally. Pesticide manufacturers, however, have a positive trend in competitiveness in the long-term and the short-term.

Table 5.3 summarises the trends in the competitiveness of farming requisites in South Africa. In Table 5.3, as explained before in Chapter four, the long-term trends (1961 to 2002) are indicated in the columns and the short-term (1993 to 2002) trends in the rows. If a product has both a positive short-term and long-term trend, the product is classified as a "star". Stars are products that can adapt over time and that possess an obvious sustainable competitive advantage that is updated by innovation, research and development.

If the product has a positive long-term trend combined with a negative short-term trend, it is classified as "struggling". These products are slow to adapt to the new more open economy and they need to update their competitive advantage. If the product has a negative long-term trend combined with a positive short-term trend, the product is classified as "recovering". These products have changed their destination and have adapted to the new global environment. They have developed new competitive futures.

If a product has a negative long-term as well as short-term trend, it is classified as a "crisis". Serious new development and research need to be done to save these products. From Table 5.3 it is clear that all the sectors analysed in the agricultural input industry can be classified as "stars". This means that the input industry in South Africa shows positive long-term and short-term trends in competitiveness. The input industry is able to adapt over time and it possesses a sustainable competitive advantage that is updated by innovation and research and development.

Table: 5.3: Trends in the competitiveness of farming requisites in South Africa

		Long term trend (1961 – 2002) in competitiveness	
		Positive (+)	Negative (-)
Short term trend (1993 – 2002) in competitiveness	Positive (+)	**Stars:** Total agricultural requisites; Agricultural machinery; Tractors; Fertiliser; Pesticides.	**Recovering:**
	Negative (-)	**Struggling:**	**Crisis:**

Source: Own calculations based on RTA indexes

In Table 5.4 the competitiveness status and trends in competitiveness are indicated for the input industry in South Africa. Total agricultural requisites as a whole are classified as a "rising moderate performer". Fertiliser and pesticides are also classified as "rising moderate performers". Agricultural machinery and tractors have turned their competitiveness status around. No "winners" or "losers" are identified.

Table 5.4: "Winners" and "losers" in the input industry of South Africa

<table>
<tr><td colspan="4">Trends in competitiveness 1993 -2002</td></tr>
<tr><td rowspan="4">Competitiveness in 1993</td><td></td><td>Increase</td><td>Decrease</td></tr>
<tr><td>Competitive</td><td>Winners:</td><td>Declining high performers:</td></tr>
<tr><td>Marginal</td><td>Rising moderate Performers (catch-up): Total agricultural requisites; Fertilizer, Pesticides.</td><td>Declining moderate Performers:</td></tr>
<tr><td>Not Competitive</td><td>Turnaround: Agricultural machinery; Tractors;</td><td>Chronic underperformers (losers):</td></tr>
</table>

Source: Own calculations based on RTA indexes

5.5 THE LINK BETWEEN THE COMPETITIVENESS OF THE AGRICULTURAL INPUT INDUSTRY AND THE COMPETITIVENESS OF THE REST OF THE AGRIBUSINESS VALUE CHAIN

An increase in supply chain interactions is expected between the input industry and the rest of the agribusiness value chain in South Africa. Conventional input: output analysis theory indicates a direct relationship or a cause effect relationship between the level of inputs and resulting outputs. To what extent does this theoretical relationship apply to the South African situation? Is there any correlation between the competitiveness of the input industry and the competitiveness of the rest of the agribusiness value chain in South Africa?

Table 5.5 illustrates the correlation between the competitiveness of the input industry and the competitiveness of the rest of the agribusiness value chain in South Africa from 1961 to 2001, for different time periods.

Table 5.5: Correlation between the competitiveness of the input industry and the competitiveness of the rest of the agribusiness value chain in South Africa

Time period	Correlation
1961 – 2002	-45.98%
1980 – 2002	-23.49%
1980 – 1990	-66.49%
1990 – 2001	53.07%
1993 – 2001	74.34%

Source: Own calculations based on RTA indexes

In the long run there is a negative, but not a very high, correlation between the competitiveness performance of the input industry and that of the rest of the agribusiness value chain in South Africa. The same situation is observed in the eighties. In the early nineties this relationship was positive, with 53% significance. However, since 1993 there has been a relatively high and positive correlation between the competitiveness of the input industry and the competitiveness of the rest of the agribusiness value chain in South Africa. This relationship substantiates the claim that the South African agricultural economy is fundamentally more competitive today then a decade ago, with business entities responding increasingly to market signals and the need to be competitive in a deregulated globalise environment.

5.6 CONCLUSION

Supply chain management and co-ordination is the process by which the various functions of a value added system - production, processing, and marketing – are brought into a state of harmony. A closer coordination of these supply chain operations has become increasingly more important to allow agribusinesses to be competitive, as it enables firms to adjust in order to be more responsive to changing conditions, while retaining stable relationships with firms in the chain.

South African manufacturing of farming requisites as a whole is still only relatively marginally competitive in the international arena. However, positive trends in competitiveness are observed. The agricultural machinery industry is not competitive, but it is improving. The fertiliser and pesticides industries are becoming increasingly more competitive. From the analysis in this chapter it is clear that the positive trends in the competitiveness of the agribusiness sector in South Africa during the past ten years can also be explained by the improvement in the competitiveness of the agricultural input industry in South Africa.

CHAPTER SIX

THE DETERMINANTS OF COMPETITIVENESS OF THE SOUTH AFRICAN AGRIBUSINESS SECTOR

6.1 INTRODUCTION

In Chapter four the competitiveness status and trends in competitiveness of the South African agribusiness sector were measured. In the following two Chapters, the third step of the framework developed in Chapter three – that is to analyse the competitiveness of the agribusiness sector in South Africa, will be applied. Hence, the aim of these two Chapters is to determine a) how competitive performance is achieved; and b) how it has changed over time. From this the key success factors responsible for establishing competitive advantage in the agribusiness sector of South Africa will be identified and analysed; and, in the same manner the constraints that impact negatively on the competitiveness status of agribusinesses in South Africa will be examined.

The competitiveness of the South African agribusiness sector depends on a number of factors: technological, socio-political and economic. One of the most pervasive influences is the external environment, and, in particular, the set of policies which operate in the market for agricultural goods. In Chapter four it was found that the South African agribusiness sector's competitiveness rating is generally marginal internationally. Appropriate adjustments could therefore contribute to the changing of negative situations into positive statuses. It will, however, be important to identify the particular set of factors that need adjustment.

In this chapter, the approach to competitiveness analysis developed by Porter (1990, 1998), as described in Chapter three, will be used to determine and analyse the current (2004) factors influencing the competitiveness of the agribusiness sector in South Africa. In Chapter eight, the trends in the determinants of competitiveness of the South African

agribusiness sector will be analysed. To analyse how the determinants of competitiveness in the agribusiness sector of South Africa have changed over time, the data from three research studies will be used. All three studies employ the Porter-methodology and were done over a period of five years.

6.2 IDENTIFYING THE DETERMINANTS OF COMPETITIVENESS OF THE SOUTH AFRICAN AGRIBUSINESS SECTOR

6.2.1 Methodology

The methodology described by Porter (1990, 1998) will be use as bases to determine the constraining and enhancing factors influencing the competitiveness success of agribusinesses in South Africa. This methodology has been described in some detail in Chapter two and in Chapter three.

This method is based on the perceptions of industry leaders regarding issues influencing competitiveness. It points out strengths and weaknesses, as well as identifies critical strategic factors that firms need to pay special attention to in order to develop and sustain a competitive advantage in the years to come.

6.2.2 Data used – Executive Survey 2004

Primary data obtained through a postal survey on an institutional level was used to determine the factors that influence the competitiveness of the agribusiness sector in South African. A questionnaire was developed using Porter's determinants of competitive advantage as a basis. The agribusiness sector in South Africa, as defined in Chapter one, is represented by the following organisations: the Agricultural Business Chamber (ABC); the South African National Seed Organisation (SANSOR); the Crop Protection and Animal Health Association (AVCASA); the Fertiliser Society of South Africa (FSSA); the National Chamber of Milling (NCM); South African Grain Information Services (Sagis). The members of these organisations give a good indication

of the population size (402) of the agribusiness sector in South Africa. The business operations of the population are indicated in Table 6.1. It is important to keep in mind that most agribusinesses are involved in more than one business operation. That is the reason why the percentages in Table 6.1 do not sum up to a hundred.

Table 6.1: Business operations of the population

Business operations	Percentage
The manufacturing and/or supply of primary agricultural requirements	51.99%
The production of agricultural products	19.90%
The storage/handling/packaging of primary agricultural products	46.02%
The processing (value adding) of primary agricultural products	57.96%
The marketing of primary and processed agricultural products	61.94%
The distribution of primary and processed agricultural products	39.80%
The supply of insurance services to producers of agricultural products	19.90%
The supply of financing to producers of agricultural products	14.93%
Other	2.99%

Source: Own calculations from the 2004 Executive Survey

A total of two hundred (sample sizes) questionnaires were posted. The sample was scientifically chosen so that each agribusiness in the population had a measurable chance of selection according to their business operations. This way, the results can be reliably projected from the sample to the larger population. It is also important that information is collected by means of standardised procedures so that every agribusiness is asked the same questions in more or less the same way (Scheuren, 2004).

Eighty-five questionnaires were used in the analysis, representing a response rate of 42.5%. Non-response is nearly inevitable for most surveys because some members of the sample will refuse to participate – despite every reasonable effort made. Non-response lead to either of two effects on survey results (Scheuren, 2004). Firstly, the results can be biased - the tendency for findings to be off the mark in projecting from the sample to what is happening in the population as a whole. Secondly, the variance of the results may cause projections to be higher one time but lower the next.

However, given the fact that all of the units in the population had a known, positive chance of been selected, the standardised procedures of collection and the survey's intent to describe the population and not the particular individuals who, by chance, are part of the sample, it can be stated with confidence that the survey results obtained represent a composite profile of the population.

The questionnaires were developed to determine the constraining and enhancing factors that influence the competitive success of the agribusiness sector in South Africa. The intensity and importance of these factors were also determined. The questionnaire requires the respondents (executives of agribusinesses) to give their opinion on factors influencing the competitiveness of their agribusiness operating in the agro-food and fibre complex of South Africa. This executive opinion is essential in order to bring light to competitiveness issues that are important for the country and the sector in which these companies operate.

Seventy factors were investigated. The factors investigated, based on the determinants of competitive advantage as describe by Porter (1990, 1998), can be classified as follows:

Factor conditions

?   The cost, availability and quality of skilled labour;

?   The cost, availability and quality of unskilled labour;

?   The overall cost of doing business in South Africa;

?   The quality and cost of the infrastructure in South Africa;

?   The cost, availability and quality of technology in South Africa;

?   Water for industrial purposes; and

?   The cost and availability of finance.

Demand conditions

? Sophistication of local buyers;

- Knowledgeable, demanding and willing to buy innovative products;

- Actively seek out the latest products, technologies and processes;

? Internationalisation of local buyers;

? Importance of ethics and production methods for local buyers;

? Importance of environmentally friendly products for local consumers;

? The local market size in terms of obtaining economy of scale; and

? Growth in the local market.

Supporting industries

? The availability, quality and sustainability of local suppliers of primary inputs;

? Financial institutions;

? Scientific research institutions;

? Collaboration with scientific research institutions in their R&D activities;

? Electricity suppliers;

? Telecommunication firms;

? Internet service providers; and

? Specialised information technology services.

Rivalry

? Intensity of competition in the local market;

? Source of competition in the local market;

? Difficulty for new competitors to enter into the local market;

? Substitutes for agribusinesses products and service ranges; and

? The difficulty of starting a new business in the industry.

Structure

? The involvement of local suppliers, local customers and local research institutions in product and process development;

? Information flow from primary suppliers;

? The flow of information from the customers to the company;

? The existence of regulatory standards in the sector; and

? Bargaining power of customers.

Strategy

? Sources of competitive advantage:
  - Low cost, based on low wages or availability of natural resources, or uniqueness of products, services and processes;
  - Relatively cheap products of inferior quality or affordable high quality products;

? The importance to produce and sell environmentally friendly products;

? Utilisation of the best and most efficient technology in production processes;

? Investment in human resources;

? Incentives as part of the compensation of management;

? The importance of continuous innovation in generating revenue;

? Spending on R&D by agribusinesses; and

? Uniqueness of products and services.

Government attitude and policy

? Administrative regulations in South Africa;

? The competence of personnel in the public sector;

? The impact of the tax system on promoting business investments and risk-taking;

? The impact of legal and political changes over the past five years on agribusinesses capacity for planning;

? The ability of government to enforce environmental regulations;

? The impact of complying with environmental standards on the competitiveness of agribusinesses in South Africa;

? The impact of South Africa's trade policy, land reform policy, macro economic policy, competition law and black economic empowerment (BEE) policy on the competitive success of agribusinesses; and

? The level of trust in the political system.

Chance

? The cost of crime to agribusinesses in South Africa;

? The cost of aids to agribusinesses in South Africa;

? The impact of developments in Zimbabwe on the competitive success of agribusinesses in South Africa;

? The impact of biotechnology on the competitive success of agribusinesses in South Africa; and

? The impact of the exchange rate (which was approximately R6/US$ when this survey was conducted) on the competitive success of agribusinesses in South Africa.

6.2.3 Data analysis

The data obtained from the institutional survey was analysed in SPSS for Windows and in this chapter only the major findings will be highlighted and discussed.

6.2.3.1 Business focus

In Table 6.2 the business operations of the respondents are shown. 55.00% of the respondents operate in the marketing of primary and processed agricultural products arena, 43.33% of the respondents add value to primary agricultural products and 38.33%

of the companies are distributors of primary and processed agricultural products. 38.33% of the respondents' store, handle or pack primary agricultural products and 38.33% manufacture and/or supply primary agricultural requirements. 18.33% of the respondents are involved in insurance services and 20.00% in the financing services in the agribusiness sector. 13.33% of the respondents are involved in the production of agricultural products. From Table 6.2 it is clear that the respondents represent a wide spectrum of business operations within the agribusiness sector, ranging from the production of agricultural product, to financing, insurance and value adding. The respondents are also a appropriate sample of the business operations done by the population as indicated in Table 6.1.

Table 6.2: Business operations of the respondents

Business operations	Percentage
The manufacturing and/or supply of primary agricultural requirements	38.33%
The production of agricultural products	13.33%
The storage/handling/packaging of primary agricultural products	38.33%
The processing (value adding) of primary agricultural products	43.33%
The marketing of primary and processed agricultural products	55.00%
The distribution of primary and processed agricultural products	38.33%
The supply of insurance services to producers of agricultural products	18.33%
The supply of financing to producers of agricultural products	20.00%
Other	1.67%

Source: Own calculations from the 2004 Executive Survey

6.2.3.2 Descriptive statistics

Most of the questions in the survey asked the respondents to check a box according to their executive opinion. The questions were in the following format, for example:

Competition in the local market is:

Very limited | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very intense

Crossing 1   means you agree wholeheartedly with the left-hand side

Crossing 7   means you agree wholeheartedly with the right-hand side

Crossing 2   means you largely agree with the left-hand side

Crossing 3   means you agree somewhat with the left-hand side

Crossing 4   means you opinion is indifferent between the two answers

Crossing 5   means you agree somewhat with the right-hand side

Crossing 6   means you largely agree with the right-hand side

In Table 6.3 the mean, median, standard deviation, minimum value and maximum value of each factor are indicated. In Figure 6.1 the factors are sorted according to their means to indicate the enhancing and constraining factors. In the next section these factors will be discuss in more detail.

Table 6.3: Descriptive statistics of the 2004 Executive Survey in the agribusiness sector of South Africa

Factors	Mean	Median	Standard Deviation	Modus
Skilled labour				
- Availability	3.00	3.00	1.21	3.00
- Quality	3.83	4.00	1.54	3.00
-Cost	3.85	4.00	1.48	3.00
Unskilled labour				
-Availability	6.50	7.00	0.97	7.00
- Quality	3.42	3.00	1.82	2.00
- Cost	3.80	4.00	1.90	2.00
Overall cost of doing business in SA	3.92	4.00	1.34	3.00
Infrastructure				
- Quality	4.80	5.00	1.20	5.00
- Cost	3.83	3.00	1.34	3.00
Technology				
- Quality	5.10	5.00	1.37	5.00
- Availability	4.63	5.00	1.50	5.00
- Cost	3.39	3.00	1.50	3.00
Availability of water	4.98	5.00	1.61	6.00
Finance				
- Availability	5.08	5.00	1.45	6.00
- Cost	3.68	3.00	1.66	3.00
Financial institutions	4.28	5.00	1.45	5.00
Scientific research institutions				
- Availability	3.80	4.00	1.60	5.00
-Collaboration	3.95	4.00	1.66	5.00
Electricity suppliers	4.50	5.00	1.46	4.00
Telecommunication firms	4.37	5.00	1.72	6.00
Internet service providers	5.12	6.00	1.52	6.00
Specialised information technology services	4.82	5.00	1.47	6.00
Sophistication of local buyers	4.65	5.00	1.66	6.00
Adaptations of local buyers	4.40	5.00	1.51	5.00
Internationalisation of local buyers	4.49	5.00	1.55	6.00
Importance of ethics and production methods for local buyers	4.67	5.00	1.34	5.00
Importance of environmental friendly products for local buyers	4.23	4.50	1.64	5.00
Local market size	3.62	4.00	1.58	5.00
Growth in the local market	3.55	3.00	1.51	3.00
Bargaining power of customers	5.30	5.50	1.20	6.00
Regulatory standards in industry	5.02	5.00	1.28	5.00
Flow of information from customer to company	4.92	5.00	1.34	5.00
Intensity of competition in the local	5.61	6.00	1.61	6.00

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Factors	Mean	Median	Standard Deviation	Modus
market				
Source of competition in the local market	5.25	6.00	1.77	6.00
Difficulty for new competitors to enter in the local market	4.75	5.00	1.84	6.00
Substitutes for products and services range	4.54	5.00	1.60	5.00
Difficulty to start a new business	2.93	2.00	1.76	2.00
Local suppliers of primary inputs				
- Availability	5.03	5.00	1.56	6.00
- Quality	4.83	5.00	1.28	6.00
- Sustainability	4.77	5.00	1.33	5.00
Collaboration in product and process development	3.95	4.50	1.77	5.00
Information flow from primary suppliers	4.76	5.00	1.24	5.00
Administrative regulations	2.72	3.00	1.50	3.00
Competence of personnel in the public sector	1.80	1.00	1.18	1.00
Impact of tax system on investment and risk taking	3.05	3.00	1.48	2.00
Impact of legal or political changes over the past five years	3.95	4.00	1.78	2.00
Enforcement ability of government towards environmental regulations	4.07	4.00	1.51	4.00
The impact of complying with environmental standards	5.02	5.00	1.08	5.00
SA trade policy	4.02	4.00	1.38	4.00
SA land reform policy	2.97	3.00	1.62	1.00
SA labour policy	2.60	2.00	1.55	1.00
Macro economic policy	4.55	5.00	1.32	5.00
SA competition law	4.32	4.00	1.30	4.00
SA BEE policy	3.45	3.50	1.97	1.00
Trust in the political systems	1.87	1.50	1.10	1.00
Cost of crime	1.80	2.00	0.95	1.00
Aids	2.85	3.00	1.59	3.00
Developments of Zimbabwe	3.33	4.00	1.45	4.00
Biotechnology	5.03	5.00	1.13	4.00
Current exchange rate (R6/US$)	2.55	2.00	1.58	1.00
Unique products, services and processes	5.35	6.00	1.54	6.00
Production of affordable high quality products	5.85	6.00	1.05	6.00
Production of environmental friendly products	5.05	5.00	1.33	6.00
Strategy to employ quality technology	5.12	5.00	1.28	5.00
Investment in human resources	5.38	6.00	1.14	6.00
Incentives in the compensation of	4.02	5.00	2.00	5.00

Factors	Mean	Median	Standard Deviation	Modus
management				
Continuous innovation	5.55	6.00	1.36	6.00
R&D Spending	4.14	4.00	1.73	3.00
Uniqueness of products	4.27	5.00	1.77	5.00

Source: Own calculations from the 2004 Executive Survey
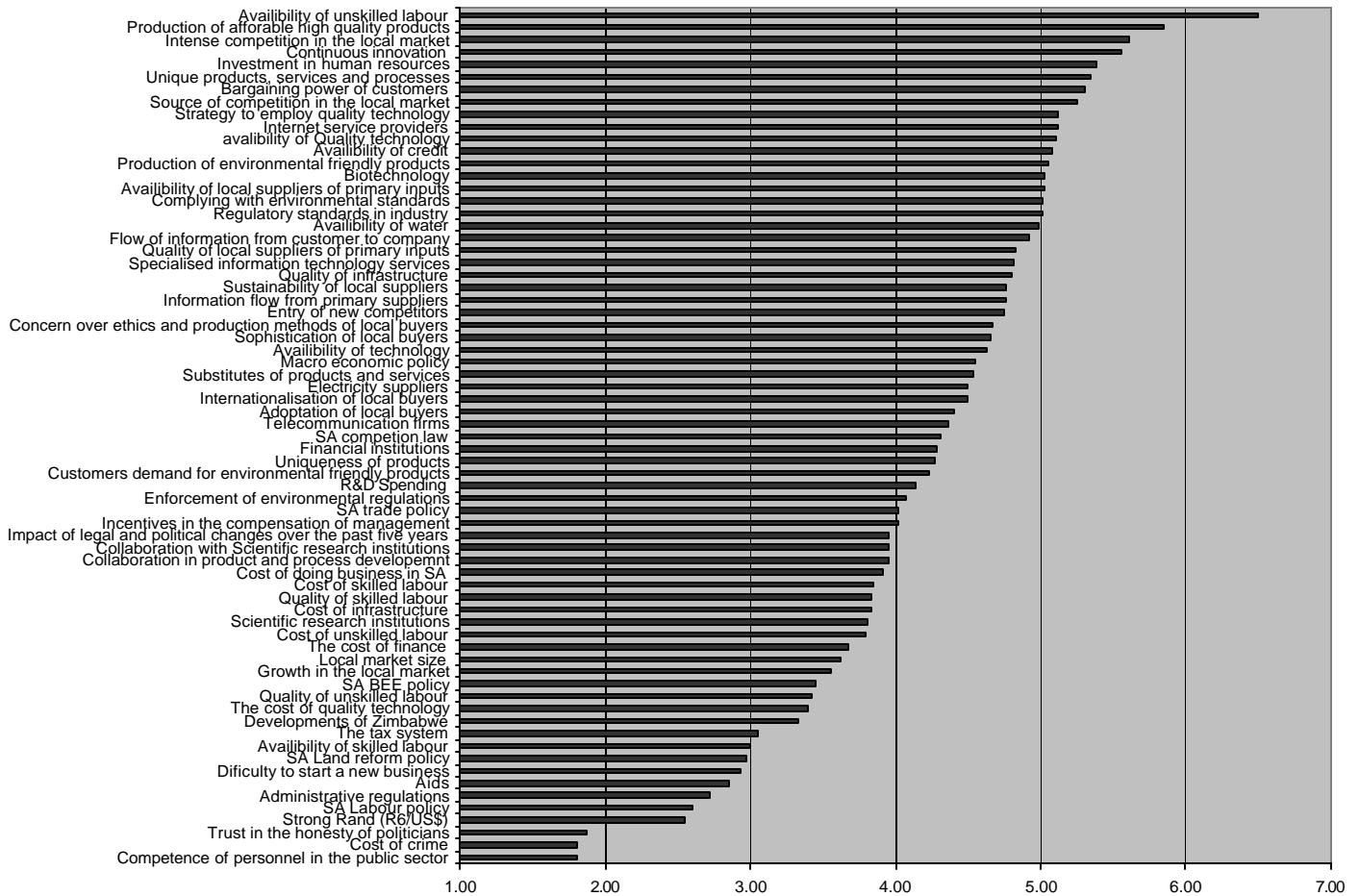
Figure 6.1: Factors used in the 2004 Executive Survey sorted according to their mean

Source: Own calculations from the 2004 Executive Survey

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6.2.3.3 General analysis of constraints

In Table 6.4 the major constraints impacting on the competitiveness success of agribusinesses in South Africa in 2004 are indicated. These factors are sorted according to their averages. The cost of crime, the competence of personnel in the public sector and trust in the political systems in South Africa are the three major constraints to the competitiveness success of agribusinesses in South Africa.

These are followed by the strong Rand, South African labour policy, burdensome administrative regulations and Aids. South Africa's land reform and BEE policies as well as the impact of the tax system also fall under the top fifteen constraints currently causing a negative influence on the competitiveness success of agribusinesses. The developments in Zimbabwe are also impacting negatively on the South African agribusiness sector, as do the availability of skilled labour and the quality of unskilled labour.

These findings are in line with the 2004 Global Competitiveness Report published annually by the World Economic Forum (WEF) and the Harvard Institute for International Development (WEF, 2004). According to the report, South Africa increased its position on the world competitiveness ranking order by one position from 42nd to 41st out of 104 countries, in 2004. The World Economic Forum, however, expressed its concern that the stronger Rand was tarnishing what would have been an even better performance by South Africa. Last year the Rand gained 23% against the Dollar and the WEF report appears to provide proof that the Rand's gains had knocked South Africa's competitiveness.

According to the 2004 Global Competitiveness Report (WEF, 2004), South Africa's labour policy and labour laws (96th out of 104 countries), the cost of crime (92nd), Aids and the lack of available skilled labour were the major constraints to South Africa's competitiveness success. South Africa's macro-economic stability has worsened from

41st to 87th position. South Africa was also almost last when it came to obstacles put in place by the country to prevent its companies from hiring foreign labour.

Table 6.4: Major constraints to the competitiveness success of agribusinesses in South Africa

Factors	Average	Median	Standard deviation
1) Cost of crime	1.80	2.00	0.95
2) Competence of personnel in the public sector	1.80	1.00	1.18
3) Trust in the political systems	1.87	1.50	1.10
4) Strong Rand (R6/US$)	2.55	2.00	1.58
5) South Africa's labour policy	2.60	2.00	1.55
6) Administrative regulations	2.72	3.00	1.50
7) Aids	2.85	3.00	1.59
8) Difficulty to start a new business	2.93	2.00	1.76
9) South Africa's Land reform policy	2.97	3.00	1.62
10) Availability of skilled labour	3.00	3.00	1.21
11) The impact of the tax system on investment and risk taking	3.05	3.00	1.48
12) Developments in Zimbabwe	3.33	4.00	1.45
13) The cost of quality technology	3.39	3.00	1.50
14) Quality of unskilled labour	3.42	3.00	1.82
15) South Africa's BEE policy	3.45	3.50	1.97
1 = major constraint 7 = major enhancement			

Source: Own calculations from the 2004 Executive Survey

6.2.3.4 General analysis of enhancements

In Table 6.5 the major enhancements to the competitiveness success of the agribusiness sector in South Africa are indicated. Availability of unskilled labour, the production of affordable high quality products, intense competition in the local market, continuous innovation and investment in human resources are the five major factors enhancing the competitive success of agribusinesses in South Africa. The availability of unskilled labour, however, must be read in conjunction with the cost and the quality of the

unskilled labourers. The cost and the quality of unskilled labour is rated by agribusinesses in South Africa as having a negative impact on their competitiveness.

Other factors rated by agribusinesses in South Africa as having a positive impact on their competitiveness are micro economic factors such as unique products, services and processes, the bargaining power of customers, strategies by agribusinesses to employ quality technology, internet service providers, the quality of technology in South Africa, the availability of credit, the production of environmentally friendly products, biotechnology, the availability of local suppliers of primary inputs and the regulatory standards in the industry.

From the top ten major enhancements to the competitiveness of agribusinesses in South Africa, five (production of affordable high quality products, continuous innovation, investment in human resources, unique products, services and processes as well as the strategy to employ quality technology) are divided into company strategies. Three of these factors (production of affordable high quality products, continuous innovation, and investment in human resources) are also under the top five major enhancements to the competitiveness of agribusinesses in South Africa.

Once again, this is in line with the 2004 Global Competitiveness Report (WEF, 2004). According to the report, South Africa was rated 25th best when it came to a micro economic environment that allows for companies to flourish. The efficiency of the board of directors of companies in South Africa was ranked 8th in the world, while South African companies were rated 24th in terms of sophisticated strategies. South Africa's soundness of banks was 21st in the world.

By analysing the factors enhancing the competitiveness of agribusinesses in South Africa, it seems that the micro economic environment and the strategies followed to achieve sustainable competitiveness by agribusinesses are in line with the new competitiveness theory as described in Chapter two. In order to achieve competitive success, agribusinesses in South Africa must possess a competitive advantage in the form of either

lower costs or differentiated products that command premium prices. In order to sustain this advantage, agribusinesses must achieve a more sophisticated competitive advantage over time, through either the provision of higher-quality products and services or more efficient production (Porter, 1998).

Wealth is generated at the microeconomic level – through the ability of firms to create valuable goods and services productively that will support high wages and high returns to capital. Therefore it can be stated that prosperity depends on improving a country's capabilities at the microeconomic level.

The microeconomic foundations of productivity rest upon two interrelated aspects: the sophistication of company operations and strategy as well as the quality of the microeconomic business environment. The sophistication with which a country's companies compete (for example, their technology and marketing approaches) ultimately determines its productivity. Unless a country's companies become more productive, its economy as a whole cannot become more productive.

The achievement of company sophistication consists of two aspects. The first is *operational effectiveness*, or the extent to which a country's companies approach the best practices in the world in areas such as production processes, technologies, marketing methods and management techniques. The other aspect of company sophistication, that is more fundamental to success in an advanced economy, is the degree to which companies have *distinctive strategies*.

If the aim is to increase prosperity, agribusinesses must transform their ways of competing. The basis for competition must shift from comparative advantage (low-cost labour or natural resources) to competitive advantages by creating unique products and processes that are guided by distinctive strategies. Agribusiness operations and strategies will be directly linked to an industry's competitiveness, because that is what determines productivity.

However, the sophistication with which companies compete is not solely of their own making. It is strongly influenced by the quality of the national business environment in which the companies operate. The business environment has much to do with the levels of operational effectiveness that companies can obtain, as well as the types of strategies that they can select. Operational effectiveness would be unobtainable, for example, if regulatory red tape is onerous, logistics are unreliable, or firms cannot get timely supplies of components or high-quality service for their production machinery. Similarly, firms have a hard time competing with differentiation strategies when they cannot find well-educated staff, if marketing channels are poorly developed, or if local customers are unsophisticated (Porter, 1998).

Table 6.5: Major enhancements to the competitiveness success of agribusinesses in South Africa

Factors	Average	Median	Standard deviation
1) Availability of unskilled labour	6.50	7	0.97
2) Production of affordable high quality products	5.85	6	1.05
3) Intense competition in the local market	5.61	6	1.61
4) Continuous innovation	5.55	6	1.36
5) Investment in human resources	5.38	6	1.14
6) Unique products, services and processes	5.35	6	1.54
7) Bargaining power of customers	5.30	5.50	1.20
8) Strategy to employ quality technology	5.12	5.00	1.28
9) Internet service providers	5.12	6.00	1.52
10) Quality of technology in South Africa	5.10	5.00	1.37
11) Availability of credit	5.08	5.00	1.45
12) Production of environmental friendly products	5.05	5.00	1.33
13) Biotechnology	5.03	5.00	1.13
14) Availability of local suppliers of primary inputs	5.03	5.00	1.56
15) Regulatory standards in the industry	5.02	5.00	1.28
1 = major constraint 7 = major enhancement			

Source: Own calculations from the 2004 Executive Survey

6.2.3.5 Importance of factors

In Table 6.6 the most important factors currently influencing the competitiveness of the agribusiness sector in South Africa, as indicated by the respondents, are shown. These factors were identified through an open question in the questionnaire. Also indicated in Table 6.6 is the impact of these factors on the competitiveness of agribusinesses.

The respondents identified the strong Rand as the most important factor currently influences their competitiveness. This influence impacts negatively on the competitiveness of the agribusinesses sector in South Africa. It would, however, be fatal if the competitiveness of the South African agribusiness sector were to be solely at the mercy of the exchange rate. Higher productivity, sharper business know-how, innovative strategies, superior and differentiated products and processes, as well as a stable macroeconomic environment should rather drive the competitiveness of the complex.

Other important factors indicated by the respondents that have a constraining impact on their competitiveness are the following: the unpredictable climatic conditions in South Africa; the high cost of transport; South Africa's labour policy; subsidised imports; the availability of raw material; the South African BEE policy; the availability of skilled labour; and the cost of labour.

The most important factors that enhance the competitiveness of agribusinesses in South Africa are the following: the quality of products, skilled and motivated staff; a well established brand name; good service; technical knowledge; low cost producers; effective management; unique products; market knowledge; innovation; customer loyalty and technology.

Table 6.6: The most important factors influencing the competitiveness of agribusinesses in South Africa

Factors	Impact
1) Strong rand	Constraint
2) Good quality for money products	Enhancement
3) Unpredictable climatic conditions	Constraint
4) Skilled staff	Enhancement
5) The cost of transport	Constraint
6) Established brand name	Enhancement
7) Good service	Enhancement
8) South Africa's labour policy	Constraint
9) Subsidised imports (dumping)	Constraint
10) Availability of raw material	Constraint
11) BEE policy	Constraint
12) Technical knowledge	Enhancement
13) Low cost producers	Enhancement
14) Effective management	Enhancement
15) Availability of skilled labour	Constraint
16) Unique products	Enhancement
17) Market knowledge	Enhancement
18) Innovation	Enhancement
19) Cost of labour	Constraint
20) Customer loyalty	Enhancement
21) Technology	Enhancement

Source: Own calculations from the 2004 Executive Survey

6.3   APPLICATION OF THE PORTER ANALYSIS

Production factor conditions: According to standard economic theory, factors of production – labour, land, natural resources, capital, and infrastructure – will determine the flow of trade. A nation will export those goods that make most use of the factors with which it is relatively well endowed. This doctrine, the origin of which dates back to Adam Smith (1776) and David Ricardo (1817) and that is embedded in classical economics, is at best incomplete and at worst incorrect (Cho & Moon, 2002).

Within the sophisticated industries that form the backbone of any advanced economy, a nation does not inherit, but rather creates, the most important factors of production – such as skilled human resources or a scientific base. Moreover, the stock of factors that a nation enjoys at a particular time is less important than the rate and efficiency with which it creates, upgrades and deploys them in particular industries.

In Table 6.7 production factor conditions as a determinant of the competitiveness of the agribusiness sector in South Africa are rated to have either an enhancing (3), constraining (1) or moderate (2) impact on competitiveness. The modus score for all the factor conditions is 2, which means that factor conditions in South Africa have a moderate effect on the agribusiness sector's competitiveness. The factor conditions that have the most constraining effect on competitiveness are the quality of unskilled labour and the unavailability of skilled labour.

The factors that have an enhancing impact on the competitiveness of agribusinesses in South Africa are the availability of unskilled labour, the quality of infrastructure in South Africa, the availability of capital, the quality and availability of technology and the availability of water for industrial purposes.

Table 6.7: Production factor conditions as determinants of competitiveness

Factor conditions	Rate
Cost of doing business in SA	2
Labour	(2)
- Cost of unskilled labour	2
- Quality of unskilled labour	1 - 2
- Availability of unskilled labour	3
- Cost of skilled labour	2
- Quality of skilled labour	2
- Availability of skilled labour	1 – 2
Infrastructure	(2)
- Cost	2
- Quality	2 – 3
Capital	(2)
- Cost	2
- Availability	2 – 3
Technology	(2)
- Cost	1 - 2
- Quality	2 – 3
- Availability	2 – 3
Availability of water for industrial purposes	2 – 3
Modus score for factor conditions	*(2)*
1 = Constraint 2 = Moderate 3 = Enhancement ( ) = Modus	

Source: Own calculations from the 2004 Executive Survey

Demand conditions: It may appear as if the globalisation of competition could diminish the importance of local demand. In practice, however, this is simply not the case. In fact, the composition and character of the local market usually has a disproportionate effect on how companies perceive, interpret and respond to buyer needs (Cho & Moon, 2002).

In Table 6.8 the demand conditions as determinants of the competitiveness of the agribusiness sector in South Africa are illustrated. With a modus score of 2, demand conditions as a whole have a moderate impact on the competitiveness of agribusinesses in

South Africa. There is, however, no demand condition having a constraining impact on the competitiveness of agribusinesses in South Africa.

Demand conditions that enhance the competitiveness of the sector are the following: knowledgeable local buyers that demand and buy innovative products and local buyers that are concerned over ethics and production methods.

Table 6.8: Demand conditions as determinants of competitiveness

Demand conditions	Rate
Local buyers:	(2)
- Knowledgeable and demanding and buying innovative products	2 – 3
- Actively seeking out the latest products, technologies and processes	2
- In pace with rest of the world	2
- Concerned over ethics and production methods	2 – 3
- Importance of environmentally friendly products	2
Market size	2
Market growth	2
Modus score for demand conditions	*(2)*
1 = Constraint 2 = Moderate 3 = Enhancement	( ) = Modus

Source: Own calculations from the 2004 Executive Survey

Related and supporting industries: The third broad determinant of competitiveness is the presence of related and supporting industries that are internationally competitive. In Table 6.9 related and supporting industries are rated according to their impact on competitiveness. Most of the supporting industries are rated by agribusinesses in South Africa to have contributed positively and have a positive impact on the competitiveness of their businesses. It is especially the availability, quality and sustainability of local suppliers of agribusinesses' primary products, electricity suppliers, internet service providers, and specialised information technology services that contribute positively to the successful competitiveness of the agribusinesses sector in South Africa.

Table 6.9: Related and supporting industries as determinants of competitiveness

Related and supporting industries	Rate
Local suppliers of primary product:	(2 -3)
- Availability	2 – 3
- Quality	2 – 3
- Sustainability	2 – 3
Financial institutions	2
Scientific research institutions	(2)
- Availability	2
- Collaboration	2
Electricity supplies	2 – 3
Telecommunication firms	2
Internet service providers	2 – 3
Specialised information technology services	2 – 3
Modus score for related and supporting industries	*(2 - 3)*
1 = Constraint 2 = Moderate 3 = Enhancement ( ) = Modus	

Source: Own calculations from the 2004 Executive Survey

Firm strategy, structure and rivalry: The fourth broad determinant of competitive advantage in an industry is the context in which firms are created, organised and managed as well as the nature of its domestic rivalry.

In Table 6.10 the impact of firm strategy, the structure of the agribusiness sector and competitive rivalry as determinants are indicated. With a modus score of 2 to 3, firm strategy, structure and rivalry as a whole, has a positive impact on the competitiveness of agribusinesses in South Africa. Some of the major enhancing factors include the intense competition in the local market, the production of affordable high quality products and continuous innovation.

Other factors that also have a positive impact on the competitiveness of the agribusiness sector in South Africa include the regulatory standards in the sector, the flow of information from the customer to the company, the information flow from the primary suppliers, the bargaining power of the customer, the source of competition in the local

market, the production of unique products, services and processes, the production of environmentally friendly products, the strategy to employ quality technology and the investment in human resources.

Table 6.10: Firm strategy, structure and rivalry as determinants of competitiveness

Firm strategy, structure and rivalry	Rate
Structure of the agribusiness sector	(2 – 3)
- Regulatory standards in the sector	2 – 3
- Flow of information from customer to company	2 – 3
- Supply chain collaboration in product and process development	2
- Information flow from primary suppliers	2 – 3
- Bargaining power of customers	2 – 3
Rivalry	(2 – 3)
- Intense competition in the local market	3
- Source of competition in the local market	2 – 3
- Entry of new competitors	2 – 3
- Substitutes of products and services	2 – 3
- Difficulty to start a new business	1 – 2
Firm strategy	(2 – 3)
- Unique products, services and processes	2 – 3
- Production of affordable high quality products	3
- Production of environmental friendly products	2 – 3
- Strategy to employ quality technology	2 – 3
- Investment in human resources	2 – 3
- Incentives in the compensation of management	2
- Continuous innovation	3
- R&D spending	2
Modus score for firm strategy, structure and rivalry	*(2 – 3)*
1 = Constraint 2 = Moderate 3 = Enhancement ( ) = Modus	

Source: Own calculations from the 2004 Executive Survey

Government support: Government can influence each of the previous four determinants either positively or negatively. In Table 6.11 the impact of government through government policy and attitude as determinants of the competitiveness of agribusinesses in South Africa are indicated. With a modus score of between 1 – 2, government and government policies are constraining the competitive success of agribusinesses in South Africa. The major constraining factors are: burdensome administrative regulations, the competence of personnel in the public sector, the impact of the South African tax system on investment and risk-taking, South Africa's land reform policy, South Africa's labour policy, South Africa's BEE policy and the trust in the political system. South Africa's macro-economic policy and environmental regulations are rated by agribusinesses in South Africa to have a positive impact on their competitiveness.

The impact of the legal and political change, which took place the past five years, on the competitiveness of agribusinesses was relatively moderate. This indicates that South Africa has a very stable legal and political environment.

Table 6.11: Government policies as determinants of the competitiveness

Government	Rate
Administrative regulations	1 – 2
Competence of personnel in the public sector	1
The SA tax system's impact on investment and risk-taking	1 – 2
Impact of legal and political changes over the past five years	2
Enforcement of environmental regulations	2
SA environmental regulations	2 – 3
SA trade policy	2
SA land reform policy	1 – 2
SA labour policy	1 – 2
Macro economic policy	2 – 3
SA competition law	2
SA BEE policy	1 – 2
Trust in the political system	1
Modus score for government	*(1 – 2)*
1 = Constraint 2 = Moderate 3 = Enhancement ( ) = Modus	

Source: Own calculations from the 2004 Executive Survey

Chance factors: Chance events are occurrences that have little to do with circumstances in a nation and are often largely outside the power of the firms to influence. Chance events are important because they create discontinuities that allow shifts in competitive positions. Chance events can nullify the advantage of previously established competitors and create the potential for a new firm to supplant them in order to achieve competitive advantage in response to the new and different conditions (Porter, 1998).

In Table 6.12 the impact of some chance events and also factors that are difficult to be controlled by agribusiness in South Africa, are indicated. Aids, the cost of crime, developments in Zimbabwe and the strong Rand are chance factors which have a constraining impact on the competitiveness of the agribusiness sector in South Africa.

Table 6.12: Chance events as determinants of competitiveness

Chance	Rate
Cost of crime	1
Aids	1 – 2
Developments in Zimbabwe	1 – 2
Biotechnology	2 – 3
Strong Rand	1 – 2
Modus score for chance	*(1 - 2)*
1 = Constraint 2 = Moderate 3 = Enhancement ( ) = Modus	

Source: Own calculations from the 2004 Executive Survey

6.4 CONCLUSION

From the 2004 Executive Survey it is clear that the critical key success factors to the competitiveness of the agribusiness sector in South Africa are the availability of unskilled labour, intense competition in the local market, the production of affordable high quality products and continuous innovation. Other determinants that have a positive impact on the competitiveness of the sector are the quality of infrastructure in South Africa, the quality and availability of technology, sophisticated local buyers, the availability, quality and sustainability of local suppliers of primary products, electricity suppliers, internet

service providers, specialised information technology services, regulatory standards in the sector, the flow of information from customers and primary suppliers to agribusinesses, the production of environmentally friendly products, investment in human resources and South Africa's macro economic policy.

All the participants in the South Africa agribusiness sector have to pay special attention to these critical success factors in order to develop and sustain competitive advantage as successfully as possible in the years to come.

Factors that are threats to the competitiveness of the agribusiness sector in South Africa are the quality of unskilled labour, the availability of skilled labour, the cost of technology, trust in the political system, South African BEE, labour and land reform policies, the tax system in South Africa, the cost of crime, Aids, developments in Zimbabwe and the strong Rand.

Once again, special attention must be given to these factors. Strategies need to be developed to stop the negative impact of these factors on the competitiveness of the agribusiness sector in South Africa.

CHAPTER SEVEN

TRENDS IN THE DETERMINANTS OF COMPETITIVENESS OF THE AGRIBUSINESS SECTOR IN SOUTH AFRICA

7.1 INTRODUCTION

National prosperity is created, not inherited. It merely develops from a country's natural endowments, its labour pool, or its interest rates, as classical economics insists. A nation's competitiveness also depends upon the capacity of its industries to innovate and upgrade. Companies gain advantage over the world's best competitors by experiencing pressure and challenges. Companies benefit from having strong domestic rivals, aggressive home-based suppliers and demanding local customers (Porter, 1998).

In this chapter, the trends in the determinants of the agribusiness sector in South Africa will be analysed. To analyse the way in which the determinants of competitiveness in the agribusiness sector of South Africa have changed over time, three research studies, based on the Porter-methodology, will be discussed. These three studies were done over a period of five years and include the following: An executive survey performed amongst agribusinesses operating in the agro-food and fibre complex of South Africa in 2000 (Esterhuizen, Van Rooyen & D' Haese, 2001); an executive survey performed in 2002 amongst agribusiness involved in exports (Poonyth, Esterhuizen, Ngqangweni & Kirsten, 2002; Esterhuizen & Van Rooyen, 2004); and the executive survey performed in 2004 amongst agribusinesses - as was described in Chapter seven.

7.2 CONSTRAINTS AND ENHANCEMENTS

In Table 7.1 and Table 7.2 the ten major enhancements and constraints to the competitiveness of the agribusiness sector in South Africa, as identified by the three studies, are shown. From the 2000 Executive Survey it was clear that the critical key

success factors to the competitiveness of the agribusiness sector in South Africa were the quality of the products, electricity supply and the adaptability and managerial capabilities of agribusinesses. Other determinants that had a positive impact on the competitiveness of the sector in 2000 were financial institutions, transport companies, suppliers of packaging material, the linkage with agricultural suppliers, the culture within agribusinesses as well as the structure, flexibility and pricing strategies of agribusinesses (Esterhuizen, Van Rooyen & D' Haese, 2001).

Factors that were weaknesses to the competitiveness of the agribusiness sector in South Africa in 2000 were the cost of production, skilled and unskilled labour, quality and availability of infrastructure, cost and availability of capital, knowledge, technology, market size, market growth and the lack of market information, the competitiveness and sustainability of agricultural suppliers, government policy, aids, crime and price stability.

Poonyth, Esterhuizen, Ngqangweni & Kirsten (2002) identified the strengths and weaknesses, as well as the critical strategic factors that influenced the competitiveness of agricultural export firms in 2002. According to this study, the major success factors in the competitiveness of the sector were: Intense competition in the local market, the devaluation of the Rand, stringent regulatory standards in the sector, efficient supporting industries, a very good macro economic policy in South Africa and the availability of internationally competitive local suppliers of primary inputs. The major factors that impacted negatively on the competitive success of the sector were crime, the cost and availability of capital, the developments in Zimbabwe, Aids, South Africa's labour policy, the growth and size of the local market, the events of 11 September 2001 in the United States of America, the tax system in South Africa and the cost of technology.

Table 7.1: Major enhancements to the competitiveness success of agribusinesses in South Africa – 2000, 2002, 2004

2000	2002	2004
1) Quality of products	1) Intense competition in the local market	1) Availability of unskilled labour
2) Managerial capabilities	2) Recent devaluation of the Rand	2) Production of affordable high quality products
3) Adaptability of companies	3) Stringent regulatory standards	3) Intense competition in the local market
4) Electricity supplies	4) Availability of local suppliers of primary inputs	4) Continuous innovation
5) Culture within the companies	5) Internet service providers	5) Investment in human resources
6) Flexibility of companies	6) Electricity suppliers	6) Unique products, services and processes
7) Structure of the companies	7) South Africa's macro economic policy	7) Bargaining power of customers
8) Linkage with agricultural suppliers	8) Availability of unskilled labour	8) Strategy to employ quality technology
9) Suppliers of packaging materials	9) Telecommunication firms	9) Internet service providers
10) Availability of unskilled labour	10) Internationally competitive local suppliers of primary inputs	10) Quality of technology in South Africa

Source: Esterhuizen, Van Rooyen & D' Haese (2001); Esterhuizen, Ngqangweni & Kirsten (2002); Esterhuizen & Van Rooyen (2004); Own calculations from 2004 Executive Survey

Table 7.2: Major constraints to the competitiveness success of agribusinesses in South Africa – 2000, 2002, 2004

2000	2002	2004
1) Crime	1) Crime	1) Cost of crime
2) Labour policy	2) Cost of capital	2) Competence of personnel in the public sector
3) Cost of production	3) Recent developments in Zimbabwe	3) Trust in the political system
4) Quality of unskilled labour	4) Aids	4) Strong Rand (R6/US$)
5) Cost of capital	5) South Africa's labour policy	5) South Africa's labour policy
6) Admin cost associated with labour matters	6) Growth in the local market	6) Administrative regulations
7) Cost of technology	7) Availability of capital	7) Aids
8) Cost of unskilled labour	8) The events of 11 September in America	8) Difficulty to start a new business
9) Quality of physical infrastructure	9) Cost of technology	9) South Africa's Land reform policy
10) Land reform policy	10) The tax system	10) Availability of skilled labour

Source: Esterhuizen, Van Rooyen & D' Haese (2001); Esterhuizen, Ngqangweni & Kirsten (2002); Esterhuizen & Van Rooyen (2004); Own calculations from 2004 Executive Survey

From the 2004 Executive Survey, it was clear that the critical key success factors to the competitiveness of the agribusiness sector in South Africa were the availability of unskilled labour, intense competition in the local market, the production of affordable high quality products, continuous innovation, the quality of infrastructure in South Africa, the quality and availability of technology, sophisticated local buyers, the availability, quality and sustainability of local suppliers of primary products, electricity suppliers, internet service providers, specialised information technology services, regulatory standards in the sector, the flow of information from customers and primary suppliers to agribusinesses, the production of environmentally friendly products, investment in human resources and South Africa's macro economic policy.

Factors that were constraints to the competitiveness of the agribusiness sector in South Africa in 2004 were the quality of unskilled labour, the availability of skilled labour, the cost of technology, trust in the political system, South African BEE, labour and land reform policies, the tax system in South Africa, the cost of crime, Aids, developments in Zimbabwe and the strong Rand.

7.3 APPLICATION OF THE PORTER ANALYSIS

In Table 7.3 to Table 7.8, the trends in the determinants of competitiveness of the agribusiness sector in South Africa are indicated. The trends in each of the determinants will be discussed individually.

7.3.1 Factor conditions

From Table 7.3 it is clear that there is a definite positive increase in the impact of factor conditions on the competitiveness of agribusinesses in South Africa. In the years 2000 and 2002 the modus score for factor conditions was between 1 and 2. In 2004 the modus score for factor conditions was 2. There were positive increases for nearly every production factor.

The overall cost of doing business in South Africa was rated to be a constraint to the competitiveness of agribusinesses in 2000. In 2002 its score was between 1 and 2. In 2004 the cost of doing business in South Africa had a moderate impact on the agribusiness sector's competitiveness. This trend can also be seen in the production price index (PPI) of South Africa (Stats South Africa, 2004).

Table 7.3: Trends in the production factor conditions as determinants of competitiveness

Factor conditions	2000	2002	2004
Cost of doing business in SA	1	1 – 2	2
Labour	(1 – 2)	(1 - 2)	(2)
- Cost of unskilled labour	1	1 – 2	2
- Quality of unskilled labour	1	2	1 - 2
- Availability of unskilled labour	2 – 3	2	3
- Cost of skilled labour	1	1 – 2	2
- Quality of skilled labour	1 – 2	1 – 2	2
- Availability of skilled labour	1 – 2	1 – 2	1 – 2
- Administration cost associated with labour matters	1		
- Productivity		2	
Natural resources	2		
Infrastructure	(1)	(2)	(2)
- Quality	1	2	2 – 3
- Cost		1 – 2	2
- Availability	1 – 2	2	
Location	1 – 2	1 – 2	
Capital	(1)	(1)	(2)
- Cost	1	1	2
- Availability	1 – 2	1 – 2	2 – 3
Technology	(1 – 2)	*(2)*	(2)
- Cost	1	1 – 2	2
- Quality	2	2	2 –3
- Availability	1 – 2	2	2 – 3
Knowledge	(1 – 2)		
- Cost	1 – 2		
- Quality	2		
- Availability	2		
- Availability of water for industrial purposes			2 – 3
Modus score for factor conditions	*(1 – 2)*	*(1 – 2)*	*(2)*
1 = Constraint 2 = Moderate 3 = Enhancement ( ) = Modus			

Source: Own database
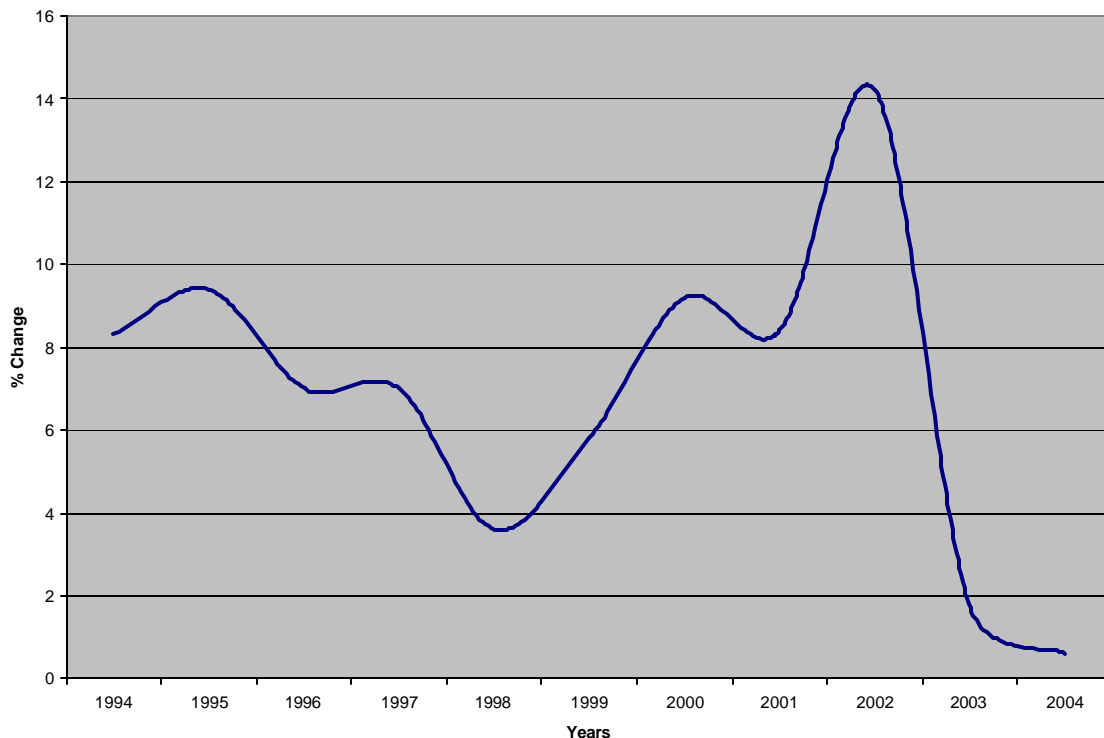
Figure 7.1: Percentage change in the PPI
Source: Stats South Africa, 2004

In the year 2000 there was a sharp increase in the PPI of 9.2%. In 2002 there was another sharp increase in the PPI of 14.2%. In 2003 and 2004 there were respectively only a 1.7% and 0.62% increase in the PPI of South Africa (see Figure 7.1).

The impact of labour on the competitiveness of agribusinesses in South Africa has also changed from having a constraining to a moderate impact. The cost of unskilled and skilled labour in South Africa was a huge constraint to the competitiveness of agribusinesses in 2000. However, in 2004, agribusinesses experienced the cost of unskilled and skilled labour to have a moderate impact on their competitiveness. There is also a positive increase in the quality of skilled labour.

However, the quality of unskilled labour has a constraining impact on the competitiveness of agribusinesses. There is also no change over the last five years on the constraining impact that the availability of skilled labour has on the competitiveness of the agribusiness sector in South Africa.

For the nine years 1994 to 2002 a total of 43 442 documented immigrants arrived in South Africa, while more than double this number (88 544) emigrated from South Africa. "Professionals" forms the largest single group of economically active people among emigrants (Stats South Africa, 2004). This number does not include, however, the thousands of professionals who did not emigrate, but are only working in countries outside South Africa.

There was a definite increase in the quality of infrastructure in South Africa. In 2000 the quality of infrastructure in South Africa constrained the competitiveness of agribusinesses. In 2004 the quality of infrastructure had an enhancing impact on the competitiveness of agribusinesses in South Africa. It seems like government's decision to spend more on the infrastructure in South Africa has gained some positive fruit.

Government has increased its annual spending on economic infrastructure (roads, bridges, dams, electricity and water supply) by 23.13% from 2000 to 2003 at constant 2000 prices (Reserve Bank, 2004).

Interest rates in South Africa in 2004 were the lowest in real terms since the 1980's. This has altered the impact of the cost of capital on the competitiveness of agribusinesses in South Africa from a negative impact to a moderate impact. Capital is also more available, which increases the competitiveness of the agribusiness sector in South Africa.

The strong Rand and low interest rates are favourable for the procurement of new and better technology. Agribusinesses in South Africa experienced the quality and availability of technology as being an enhancement to their competitiveness in 2004. In

2000, with the devaluation of the Rand, the cost and availability of technology had a constraining effect on the competitiveness of the agribusiness sector in South Africa.

7.3.2 Demand conditions

There is an increasing trend in the impact of demand conditions on the competitiveness of agribusinesses in South Africa (see Table 7.4). In the 2000 Executive Survey, demand conditions constrained the competitiveness of the agribusiness sector in South Africa. In 2002 and 2004 the impact was moderate.

There is a definite increase in the market size, as more people from previously disadvantaged groups become economically active and join the mainstream economy. Inflation in South Africa, as measured by the consumer prices index (CPI), also indicates a decreasing trend since 2000 (Stats South Africa, 2004). This means that products in South Africa are becoming more affordable to more people. The percentage change each year in the CPI is illustrated in Figure 7.2.

Table 7.4: Trends in the demand conditions as determinants of competitiveness

Demand conditions	2000	2002	2004
Market size	1	1 – 2	2
Market growth	1 – 2	1 – 2	2
Local buyers:		(2)	(2)
- Knowledgeable and demanding and buy innovative products		2 – 3	2 – 3
- Actively seek out the latest products, technologies and processes		2	2
- In pace with rest of the world		2 – 3	2
- Concern over ethics and production methods			2 – 3
- Importance of environmentally friendly products			2
Market information	(1 – 2)		
- Quality	1 – 2		
- Availability	1 – 2		
- Cost	1 – 2		
Modus score for demand conditions	*(1 - 2)*	*(2)*	*(2)*
1 = Constraint 2 = Moderate		3 = Enhancement	( ) = Modus

Source: Own database
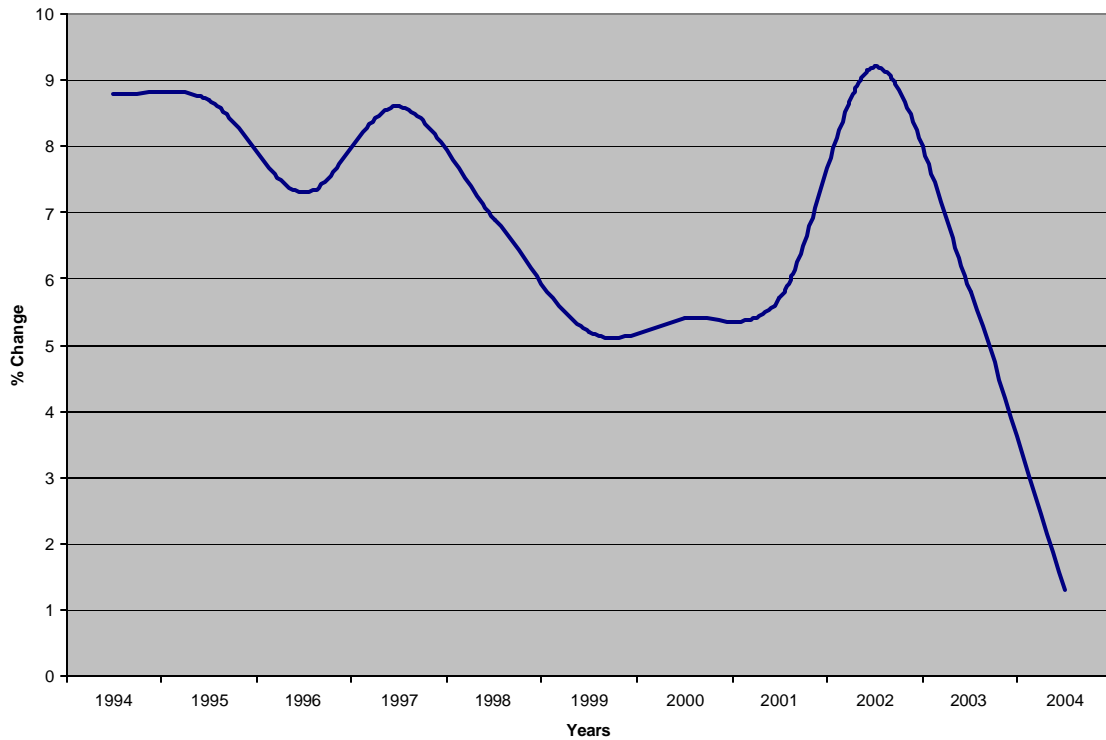
Figure 7.2: The percentage change in CPI in South Africa
Source: Stats South Africa, 2004

Local buyers in South Africa are also knowledgeable and they demand to buy innovative products. Local buyers are also in pace with the rest of the world by actively seeking out the latest products, technologies and processes. Local buyers have an enhancing impact on the competitiveness of the agribusiness sector in South Africa. Industries gain competitive advantage where the local demand gives their companies a clearer or earlier picture of emerging buyer needs, and where demanding buyers exercise pressure on companies to innovate faster and achieve more sophisticated competitive advantage over their foreign rivals.

7.3.3 Related and supporting industries

In all three surveys, related and supporting industries had enhancing impacts on the competitiveness of the agribusiness sector in South Africa. The major increases over the five years were the quality and sustainability of local suppliers of primary inputs. In 2000, the availability and sustainability of local suppliers of primary inputs had a constraining impact on the competitiveness of agribusinesses in South Africa. In 2004, local suppliers of primary inputs had a positive impact on the competitiveness of the agribusiness sector.

Table 7.5: Trends in the impact of related and supporting industries as determinants of competitiveness

Related and supporting industries	2000	2002	2004
Financial institutions	2 – 3	2	2
Internet service providers		2 – 3	2 – 3
Scientific research institutions	2 – 3	2	(2)
- Availability			2
- Collaboration Research institutions			2
Telecommunication firms		2 – 3	2
Suppliers of packaging material	2 – 3	2	
Electricity supplies	3	2 – 3	2 – 3
Transport companies	2 – 3	2	
Specialised information technology services			2 – 3
Local suppliers of primary inputs	(2)	(2 – 3)	(2 – 3)
- Availability	2 - 3	2 – 3	2 – 3
- Quality	1 – 2	2 – 3	2 – 3
- Sustainability	1 – 2	2	2 – 3
Related industries	2		
Modus score for related and supporting industries	*(2 – 3)*	*(2 - 3)*	*(2 - 3)*
1 = Constraint 2 = Moderate	3 = Enhancement		( ) = Modus

Source: Own database

7.3.4 Firm strategy, structure and rivalry

The positive impact of firm strategy, the structure of the agribusiness sector in South Africa and rivalry on the competitiveness of agribusinesses in South Africa has remained constant over the five year period (see Table 7.6). With a modus score of between 2 and 3 across all three years, firm strategy, industry structure and rivalry have an enhancing impact on the competitiveness of the agribusiness sector in South Africa.

The most enhancing strategy to agribusinesses in South Africa is the production of affordable high quality products. In both 2000 and 2004 the respondents awarded a score of 3 to this strategy.

Agribusinesses in 2004 are more effective in their supply chain approach. As already mentioned, the "supply chain" interaction is viewed as one of the most important business phenomena in the food and agricultural industry for the future. Supply Chain Management is an integrated management approach for planning, controlling and optimising the flow of goods and information through a distribution channel between suppliers to end users in order to add value to the various role players, including farmers and agribusinesses. Generally, several independent firms are involved in the activities from production and manufacturing of the product to placing it in the hands of the end users. The networks that these firms use to pass goods and information simultaneously can be referred to as a supply chain.

From Table 7.6 it is clear that the flow of information from the customer to the agribusinesses, supply chain collaboration in product and process development, the bargaining power of customers and the flow of information from the primary suppliers, all had an enhancing impact on the competitiveness of the agribusiness sector in South Africa in 2004. All these factors indicate an effective supply chain.

Table 7.6: Trends in firm strategy, structure and rivalry as determinants of competitiveness

Firm strategy, structure and rivalry	2000	2002	2004
Structure of the sector			
- Regulatory standards in the sector		2 – 3	2 – 3
- Flow of information from customer to company		2 – 3	2 – 3
- Supply chain collaboration in product and process development			2
- Information flow from primary suppliers		2 – 3	2 – 3
- Bargaining power of customers	1 – 2		2 – 3
- Market power of suppliers	1 – 2		
Rivalry			
- Intense competition in the local market		3	3
- Source of competition in the local market			2 – 3
- Entry of new competitors	1 - 2	2 - 3	2 – 3
- Substitutes of products and services	1	2 – 3	2 – 3
- Difficulty to start a new business			1 – 2
Firm strategy			
- Unique products, services and processes			2 – 3
- Production of affordable high quality products	3		3
- Production of environmentally friendly products			2 – 3
- Strategy to employ quality technology			2 – 3
- Investment in human resources			2 – 3
- Incentives in the compensation of management			2
- Continuous innovation			3
- R&D spending			2
- Adaptability	3		
- Culture	2 – 3		
- Structure	2 – 3		
- Flexibility	2 – 3		
- Pricing strategy	2 – 3		
- Managerial capabilities	3		
Modus score for firm strategy, structure and rivalry	*(2 – 3)*	*(2 – 3)*	*(2 – 3)*
1 = Constraint 2 = Moderate	3 = Enhancement		( ) = Modus

Source: Own database

However, it is evident from the 2000 Executive Survey that most of these supply chain manageable factors were constraining the competitiveness of the agribusiness sector in South Africa. In Figure 7.3 the impact of seven factors on the competitiveness of agribusinesses in South Africa that can be managed through a supply chain interaction is indicated, as measured in 2000. From Figure 7.3 it is clear that most of the factors constraining the competitiveness of agribusiness in 2000 were factors such as price instability, the market power of buyers, the market power of suppliers and the quality, availability and cost of market information. Agribusinesses indicated that they had a good linkage with suppliers. This was, however, not converted into an enhancing factor to competitiveness because of a lack of effective supply chain management.
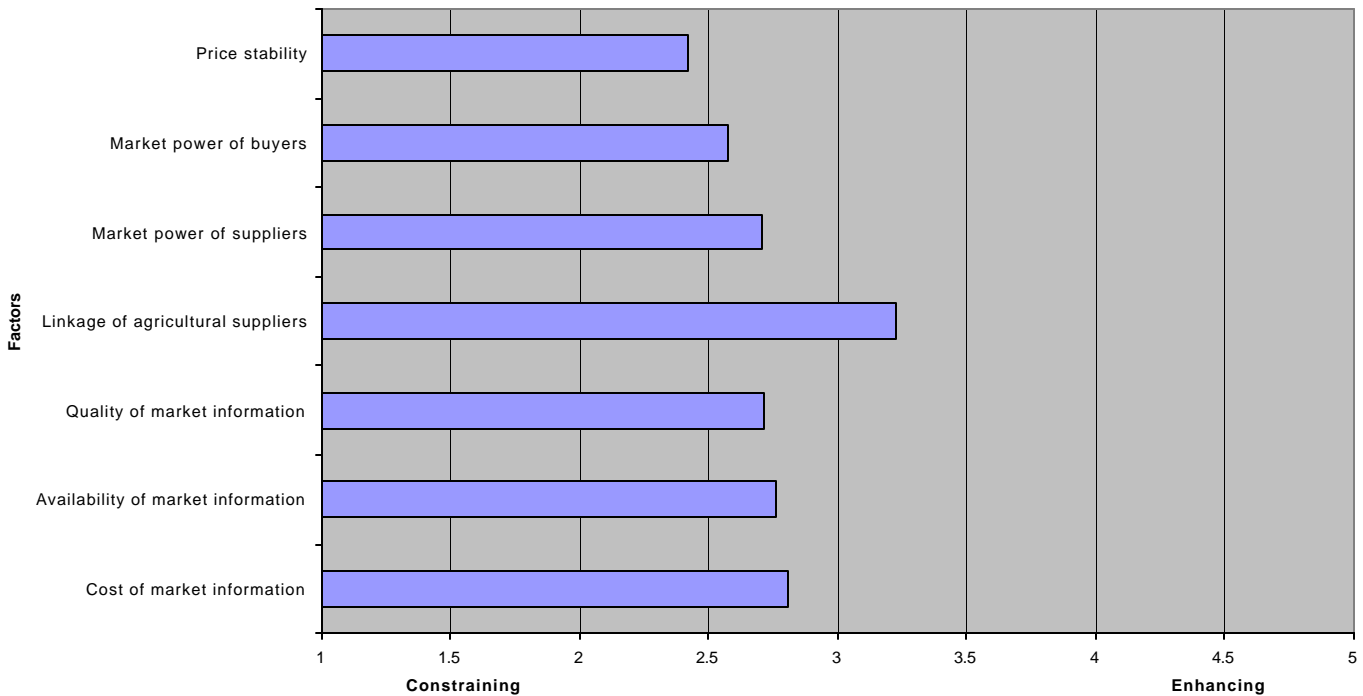
Figure 7.3: The impact of specific factors on the competitiveness of agribusinesses in South Africa in 2000

Source: Own calculations from the 2000 Executive Survey

One reason for the improvement in the efficiency of supply chain management by the agribusiness sector in South Africa could be credited to the work and research performed by the Agricultural Business Chamber amongst its members on this issue (Doyer, 2002; Van Rooyen *et al*, 2001; Esterhuizen *et al,* 2001; Esterhuizen *et al*, 2002).

7.3.5 Government policies and attitudes

Government policies and attitudes have a constraining impact on the competitiveness of the agribusiness sector in South Africa (see Table 7.7). In 2000, the modus score for government policies and attitudes were 1, in 2002, it was 2 and in 2004, it was between 1 and 2.

South African labour policy and land reform policy has been constraining the competitive success of agribusinesses for the past five years. South African macro-economic policy and trade policy have positive impacts on competitiveness.

Table 7.7: Trends in the impact of government policy and attitudes as determinant of competitiveness

Government	2000	2002	2004
South Africa's macro economic policy		2 – 3	2 – 3
Indirect support	1		
Administrative regulations			1 – 2
Competence of personnel in the public sector			1
SA trade policy	1 – 2	2	2
South Africa's land reform policy	1	2	1 – 2
The SA tax system's impact on investment and risk-taking		1 – 2	1 – 2
Impact of legal and political changes for the past five years			2
South Africa's fiscal policy	2	2	
Enforcement of environmental regulations			2
SA environmental regulations			2 – 3
South Africa's labour policy	1	1 – 2	1 – 2
South Africa's competition law		2	2
SA BEE policy			1 – 2
Trust in the political system			1
Modus score for government	*(1)*	*(2)*	*(1 – 2)*
1 = Constraint 2 = Moderate		3 = Enhancement	( ) = Modus

Source: Own database

7.3.6 Chance events

Crime still poses a major constraint to the competitiveness of the agribusinesses sector in South Africa. Since the 2000 Executive Survey, there has been no change in the constraining impact of crime on the agribusiness sector in South Africa. Aids and the developments in Zimbabwe also have an on-going constraining impact on the competitiveness of agribusinesses.

In 2002, the devaluation of the Rand against all other major currencies had an enhancing impact on the competitiveness of the agribusiness sector in South Africa. In 2004, the

strong Rand had a constraining impact on the competitiveness of the agribusiness sector in South Africa.

Table 7.8: Trends in chance events as determinants of competitiveness

Chance	2000	2002	2004
Crime	1	1	1
Devaluation of the Rand		3	
Strong Rand			1 – 2
Economic stability	1 –2		
Aids	1	1 – 2	1 – 2
The events of 11 September 2001 in America		1 – 2	
Political stability	2		
Biotechnology		2	2 – 3
Price stability	1		
Developments in Zimbabwe		1	1 - 2
Modus score for change conditions	*(1)*	*(1 - 2)*	*(1 - 2)*
1 = Constraint 2 = Moderate	3 = Enhancement		( ) = Modus

Source: Own database

7.4 SUMMARY AND CONCLUSION

From Chapter four it was clear that the South African agribusiness sector is generally marginal as far as international competitiveness is rated. However, the South African agribusiness sector is much more competitive now than ten years ago and it looks as if this positive trend will continue.

From the analysis in this Chapter it is also clear that the South African agribusiness sector illustrates a positive trend in the determinants of competitiveness. Figure 7.4 and Figure 7.5 illustrates this positive trend. In Figure 7.4 the main determinants (Porter – diamond) of competitiveness are illustrated. In Figure 7.5 selected factors influencing the competitiveness of the agribusiness sector in South Africa are illustrated.

From Figure 7.4 it is clear that the 2004 - line is on the outside of the graph in all the determinants, except for government policies and support, indicating a positive trend in these determinants ability to enhance the competitiveness of the agribusiness sector in South Africa. Factor and demand conditions indicate positive trends in terms of its impact on the competitiveness of the agribusiness sector in South Africa, but it still needs improvement. Firm strategies, industry structure and the local rivalry, combined with the supporting industries, with a score of 2 – 3 in all three years, are the key factors that provide the agribusiness sector in South Africa a global competitive edge.

Government indicates a decreasing trend in their ability to influence the competitiveness of the agribusiness sector in South Africa in a positive manner. With a score of between 1 and 2 in 2004, government, through its policies and attitudes, is constraining the competitiveness of the agribusiness sector in South Africa. Chance factors also influence the South African agribusiness sector's competitiveness in a negative manner, which indicates the vulnerability of businesses in South Africa against local and global shocks. It also indicates that agribusinesses in South Africa are not flexible enough to exploit business opportunities that originate from a changing environment.

The 2004 – line in Figure 7.5 is also on the outside of the graph in most of the factors, indicating a positive or constant trend in these factors' ability to enhance the competitiveness of the agribusiness sector in South Africa. Factors that show a positive trend in their ability to enhance the competitiveness of the sector are: factor conditions – labour, infrastructure, capital and technology; demand conditions – market size and market growth; local suppliers of primary inputs; South Africa's Trade policy and a decreasing trend in the cost of doing business in South Africa.

Factors that indicate negative trends in their impact on the competitiveness of the agribusiness sector in South Africa are: financial institutions, scientific research institutions and electricity supplies.
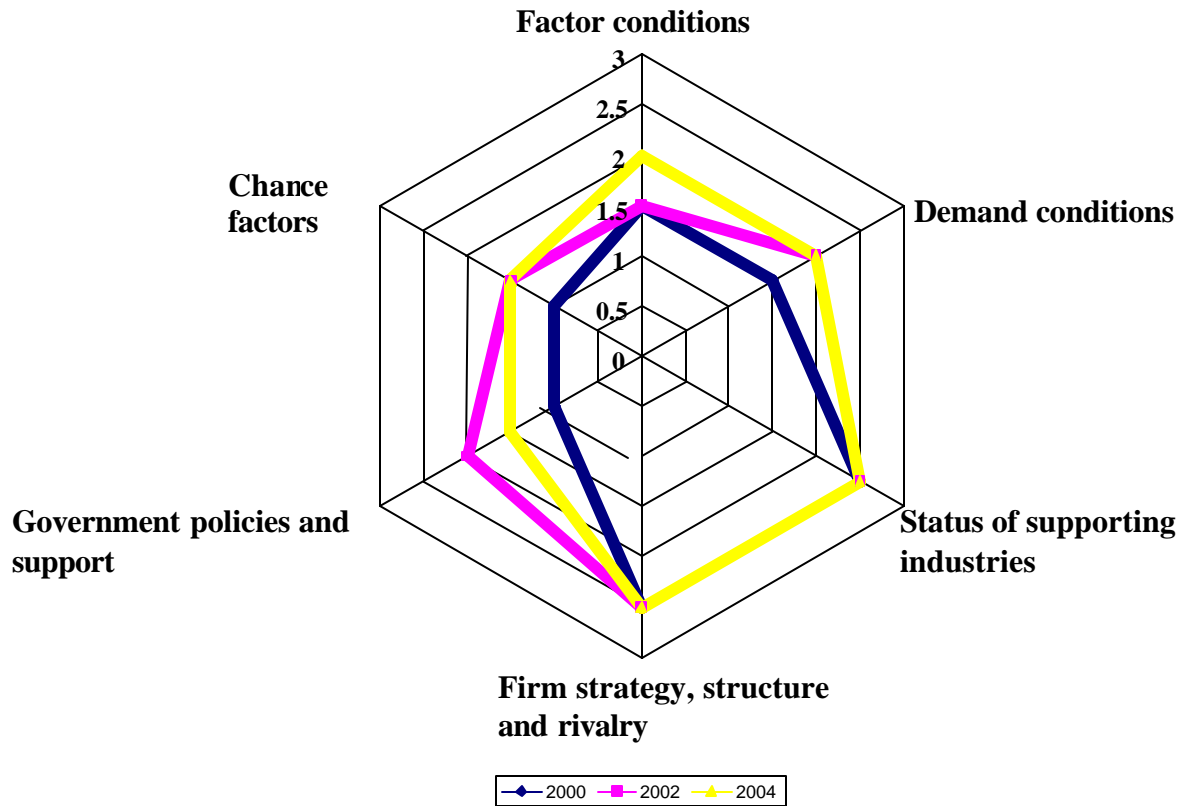
Figure 7.4: Trends in the impact of the determinants of competitiveness on the agribusiness sector in South Africa

Source: Own database

Notes: 1 = Constraint   2 = Moderate   3 = Enhancement
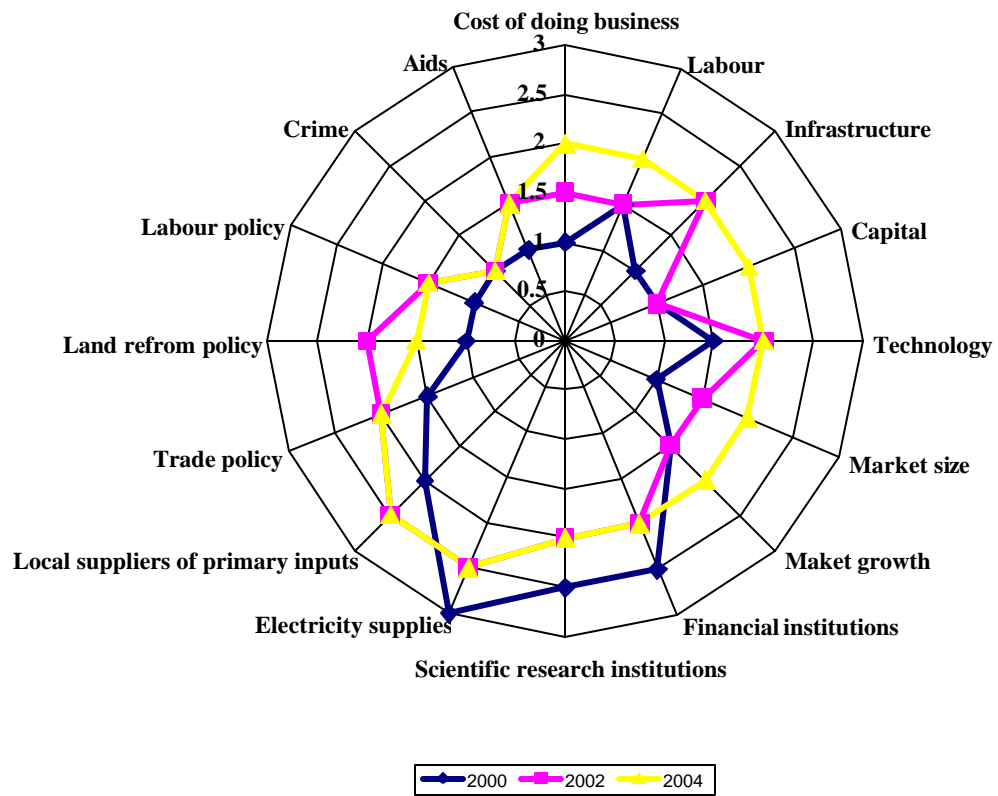
Figure 7.5: Trends in the impact of specific factors on the competitiveness of the agribusiness sector in South Africa

Source: Own database

Notes: 1 = Constraint   2 = Moderate   3 = Enhancement

CHAPTER EIGHT

AN ANALYSIS OF THE DECISION-MAKING ENVIRONMENT OF THE AGRIBUSINESS SECTOR IN SOUTH AFRICA

8.1 INTRODUCTION

In this chapter, the methodology of the fourth step of the competitiveness framework as developed in Chapter three will be used to investigate the decision-making environment of the agribusiness sector in South Africa and to develop a model to determine the confidence status and trends of agribusinesses.

Change in virtually every stratum of society is a feature of our time. These changes have a direct effect on the business confidence of managers and influence their next business decision. Economists have developed indicators, generally known as indexes, in an attempt to measure these changes. Up until now there has not existed an index for the measurement of the business confidence in the agribusiness sector of South Africa. The measurement of business confidence is important, as it reliably indicates the current and expected state of the economy. Business confidence also has a direct impact on the competitive performance of agribusinesses.

An increase in business confidence reveals that economic growth and private fixed and inventory investment could improve in future. The opposite applies if confidence declines. Business confidence tends to rise when the increase in business activity matches or surpasses previous expectations and when the external environment (e.g. the political situation in South Africa, economic policy, the world economy) remains relatively stable (Bureau for Economic Research, 2000).

Business confidence could be "low", because business people are uncertain about prospects and/or unhappy with current company performance. This may reflect

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uncertainty about the macro-environment or micro-environment within which the company operates and/or that business activity (e.g. sales, production or exports) is low.

In this chapter, the methodology to construct an Agribusiness Confidence Index for South Africa will firstly be discussed. The objective of such an index will be to determine the business confidence of agribusinesses as accurately as possible. The index can then be used in management and policy processes. The aim is to determine the confidence of agribusinesses on a quarterly basis, with the first index being released in 2001.

The status and trends in the business confidence of the agribusiness sector in South Africa will then, secondly, be analysed and discussed. Thirdly, in this chapter, tests of consistency will be performed to see if the results of the Agribusiness Confidence Index can be linked to other performances in the agribusiness sector of South Africa. Tests of consistency are important because it will reflect whether an increase or decrease in the index portrays reality. The chapter ends with concluding remarks.

8.2 METHODOLOGY

8.2.1 Indexes as means of measurement

There are many concepts in the social sciences that can be measured directly in a satisfactorily manner, but there are also many others for which this simply cannot be done. For example, a bank's prime interest rate on loans is a fairly well defined concept capable of being measured directly. However, it is not clear how one should measure things such as the intelligence of students, the confidence of managers, the cost of living or the ability of farmers to perform.

For things that do not lend themselves to direct measurement, it is necessary to introduce some associated quantity that will serve to represent them quantitatively. Psychologists have used certain tests for measuring students' academic talents and, on the basis of such tests, have introduced a quantity called an intelligence quotient for discussing intelligence

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in a quantitative manner (Steyn et al, 1989). Similarly, economists have introduced various quantities for describing the level of the stock market, the most common of which is the Dow-Jones Industrial Average and the Johannesburg Stock Exchange index.

These indirect measures, or indicators, are also known as indexes, or indices, even though they may not carry that name in their title. There exist quite a large number of such indexes in economics and the business environment.

Indexes are frequently used in quantitative research, for several reasons. Firstly, despite the care taken in designing studies to provide valid and reliable measurements of variables, the researcher can seldom develop in advance single indicators of complex concepts. This is especially true with regard to attitudes and orientations. Social scientists, using a variety of research methods, frequently wish to study variables that do not possess clear and unambiguous single indicators.

Secondly, a rather refined ordinal measure of variables may need to be employed, arranging cases in several ordinal categories from, for example, very low to very high on a specific variable. A single data item may not have enough categories to provide the desired range of variation, but an index consisting of several items could. Indexes are typical ordinal measures of variables. Indexes rank-order the units of analysis in terms of specific variables. A person's score on a scale or index of confidence, for example, gives an indication of his or her relative confidence vis-à-vis other people.

Finally, indexes are efficient devices for data analysis. By taking a single data item into consideration it provides us with only a rough indication of a given variable. By taking several data items into consideration, it may provide us with a more comprehensive and more accurate indication. Indexes are efficient data-reduction devices: Several indicators may be summarised into a single numerical score, while sometimes also maintaining the specific details of all the individual indicators.

The primary purpose of an index is to provide a value that is useful for comparing magnitudes of aggregates of related variables to each other and to measure their changes over time. Consequently, many different indexes have been developed for special uses. Five uses of indexes will briefly be discussed: Firstly, index numbers are useful summary measures for policy guides. The Reserve Bank uses index numbers on interest rates or employment or consumer credit, as inputs for discussions on appropriate open-market transactions.

Secondly, many indexes have been developed to serve as indicators of business conditions, for example, different business confidence and consumer confidence indexes. Some indexes are commonly used in a third way for making comparisons of change among different sectors of the economy. Growth in the agricultural or mining sector may, for example, be compared with growth in the manufacturing sector.

A fourth use of certain special indexes, such as wage, productivity and cost-of-living indexes is in wage contracts and labour-management bargaining. Management often prefers to tie wage increases to productivity increases, while labour unions prefer to relate the need for wage increases to cost-of-living increases. Similar relations among indexes are used in the adjustment of insurance coverage, changing retirement and social security benefits, etc.

Finally, a fifth and very common use of an index number is as a deflator. Price or cost indexes are divided into certain measures of economic activity, in order to obtain the real or constant value of these measures. That is, an adjustment is made for the changing value of the Rand, so that more meaningful comparisons can be made over time.

8.2.2 Constructing an Agribusiness Confidence Index

In this section, the methodology to construct a business confidence index for the agribusiness sector in South Africa will be discussed. Firstly, it is plausible to assume that business people whose business conditions are to their satisfaction will have more

confidence than their counterparts experiencing unsatisfactory business conditions. Secondly, following the model illustrated in Figure 2.4, it is again plausible to assume that changes in business confidence lead to changes in action taken. Confidence can make all the difference between success and failure, mastery and misfortune. Business success and failure are not just episodes, but self-perpetuating trajectories shaped by confidence or the lack thereof (Kanter, 2004).

Economic and business indicators or factors that will give the most accurate measure of the business confidence of agribusinesses in South Africa, were statistically identified through a survey amongst the eighty agribusinesses of the ABC. The results from the survey were also discussed with the executive management of the group of agribusinesses on the Board of the ABC and agricultural economists. Other confidence indexes, international as well as domestic, were also investigated. The ten factors that were identified in this manner and that will be used to determine the business confidence of agribusinesses in South Africa as accurately as possible, are:

?   The expected turnover of the business

?   The expected nett operating income of the business

?   The employment trends in the business

?   The trends in capital investment by the business

?   Expected economic growth in South Africa

?   The amount of export by the business

?   The general agricultural conditions in South Africa

?   The trends in market share by the business

?   The increase or decrease in debtor provision for bad debt by the business

?   The increase or decrease in financing costs

Both macro and micro indicators are included in the index. All of the above factors have an obvious impact on the business confidence of agribusinesses. Poor sales, for instance, will dampen confidence, as well as a lack of orders received. In fact, research done in

Europe has shown that orders received are an important determinant of manufacturer's confidence (Bureau for Economic Research, 2000).

The various determinants listed above do not have identical impacts on confidence. This implies that the factors need to be weighted in order to obtain a reliable composite index. The Laspeyres composite index is the most widely used in practise, because it employs the same weights in each period. For the same reasons and because the weights assigned to each factor will not change dramatically over the next few years, the Laspeyres type index was used in the construction of the Agribusiness Confidence Index. The Laspeyres index is given as (Steyn et al, 1996):

$$I \quad = \quad ? \ F_n w_o / ? \ F_o w_o \quad x \quad 100$$

Where:

I = Index

F_n = Factors in period n

F_o = Factors in period o (base period)

W_o = Weight of each factor as determined in base period

The importance of the indicators was determined at the same time and through the same scientific procedures as when the economic and business indicators were determined. Weights were allocated to each of the indicators according to the survey results and after the discussion held with the executive management of a group of agribusinesses on the board of the ABC. The weights allocated to each indicator are illustrated in Table 8.1.

Table 8.1: The mean, variation coefficient and weights assign to each factor

Factors	Mean[a]	Variation coefficient[b]	Weight assign to factor
Turnover	3.36	21.78%	1.26
Nett operating income	3.43	20.13%	1.29
Employment	2.93	25.68%	1.10
Capital investment	3.59	15.84%	1.35
Economic growth in South Africa	3.69	14.67%	1.39
Exports	3.10	21.69%	1.17
General agricultural conditions	3.29	16.27%	1.24
Market share	2.66	30.66%	1.00
Debtor provision for bad debt	3.10	21.69%	1.17
Financing cost	3.10	21.69%	1.17

Source: Own calculations from survey

Notes: [a] Scores ranging from 1 (not determinant of business confidence) to 4 (very important determinant of business confidence).

[b] The variation coefficient represents the standard deviation as a percentage of the mean. The higher the coefficient, the higher the variation.

The Agribusiness Confidence Index is compiled quarterly, starting with the first quarter of 2000. The year 2000 will be used as base year. The base period, or reference point, is the year or time period in the past against which all other comparisons are made. In selecting the base period for a particular index, two rules should be observed. Firstly, the period selected should, as much as possible, be one of economic normality or stability, rather than one at or near the peak of an expanding economy or the trough of a recession or declining economy. Secondly, the base period should be recent, so that comparisons will not be unduly affected by changing technology, changing product quality, and/or changing consumer attitudes, interests, tastes and habits (Steyn et al, 1996).

8.2.3 Data collection

In constructing an Agribusiness Confidence Index for the South African agribusinesses sector, agribusinesses involved in the following activities were selected - as they provide the most reliable and measurable "barometers" of the situation in the agribusiness sector:

? **Tertiary transformation** of commodities into value added products – where the value is derived from the process of transformation.

? **Supply of inputs** to the primary and tertiary sectors.

? **Retail and wholesale provision** of commodity and value added food, fibre and related products to consumers.

? The **provision of services** such as finance, insurance and technical advice.

The group of agribusinesses are mainly agricultural companies, agricultural co-operatives; agricultural co-operatives in the developing agricultural sector; companies that arose out of the conversion of agricultural co-operatives and all members of the ABC. These businesses play a significant role in the economy of South Africa as handlers, processors and marketers of agricultural products, and as suppliers of production inputs and services. In addition, they are major employers, developers and sources of added value, representing a total asset value of almost R30 billion and an annual agricultural business turnover of approximately R50 billion. Combined, they operate more than 2000 service centres country-wide and have a total employee complement of more than 100 000. In many rural areas, these agribusinesses are the business hub of the community and they make a key contribution to maintaining the rural infrastructure (Agricultural Business Chamber, 2000).

The primary data is collected every quarter from a sample size of fifty agribusinesses. The survey results are obtained from questionnaires completed by the senior executives. Their views are obviously based on own experience and perceptions, but also on hard facts that are essential for sound business decision-making. Respondents must give their

opinion on the 10 key economic and business indicators by comparing the current situation with that of a year ago.

"The actions people take depend on what they believe is true. But what they believe is true, that is, their perceptions, may be only partly true or even wholly false. Even so, these perceptions of reality, not reality itself, affect their behaviour. The effects of their actions do depend on reality and may in turn cause changes in their perceptions"

- Telser, 1987

8.3 STATUS AND TRENDS IN THE BUSINESS CONFIDENCE OF THE AGRIBUSINESS SECTOR IN SOUTH AFRICA

In Table 8.2 trends in the Agribusiness Confidence Index for South Africa are indicated. The base year is 2000. Each quarter of a specific year is then compared to the base quarter, which is one hundred in 2000. The results from 2000 to 2004 are indicated.

The business confidence of the agribusiness sector in South Africa was 17.16% higher in the 1st quarter of 2004 compared to the 1st quarter of 2000. Business confidence was, however, 2.08% lower in the 2nd quarter of 2004 compared to the 2nd quarter of 2000. The business confidence of the agribusiness sector in South Africa during the 3rd quarter of 2004 was 19.73% higher than in the 3rd quarter of 2000. There was, however, no growth in the business confidence of agribusinesses between the 3rd quarter of 2003 and the 3rd quarter of 2004. In the 4th quarter of 2004 business confidence of agribusiness was 28.33% higher than in the 4th quarter of 2000.

According to the Agribusiness Confidence Index, agribusiness confidence was the highest during the 3rd and 4th quarter of 2002 and the 1st quarter of 2003. During this period, business confidence of agribusiness was respectively 35.06%, 39.99% and 49.41% higher than the 1st, 3rd and 4th quarters of 2000. Agribusiness confidence was the lowest in the 2nd quarter of 2004 (2.08% lower than the base year)

Table 8.2: The Agribusiness Confidence Index

<table>
<tr><td colspan="5">The Agribusiness Confidence Index
Quarters</td></tr>
<tr><td>Year</td><td>1st</td><td>2nd</td><td>3rd</td><td>4th</td></tr>
<tr><td>2000</td><td>100.00</td><td>100.00</td><td>100.00</td><td>100.00</td></tr>
<tr><td>2001</td><td>103.27</td><td>100.96</td><td>113.95</td><td>115.89</td></tr>
<tr><td>2002</td><td>127.65</td><td>116.12</td><td>139.99</td><td>149.41</td></tr>
<tr><td>2003</td><td>135.06</td><td>102.48</td><td>119.20</td><td>126.65</td></tr>
<tr><td>2004</td><td>117.16</td><td>97.92</td><td>119.73</td><td>128.33</td></tr>
</table>

Source: Own database

The reasons for the changes in the Agribusiness Confidence Index will now be dicussed for each quarter, starting at the first quarter of 2002.

8.3.1 First quarter 2002 – Growing business confidence in agribusinesses

The Agribusiness Confidence Index for the first quarter of 2002 showed a 23.61% increase in the business confidence of agribusinesses in South Africa compared to the same period in the year before, and a 10.15% increase compared to the fourth quarter of 2001.

This increase in business confidence was driven largely by expectations of better agricultural conditions, higher capital investment, higher turnovers and operating income, higher export volumes and a bigger market share. The good news was the expected increase in employment and job creation that could be facilitated by the growth in confidence.

A cause for concern, however, was that agribusinesses were still not positive in their expectations of economic growth, although the situation had improved slightly since the last quarter of 2001.

8.3.2 Second quarter 2002 – 15.02% increase in the business confidence of agribusinesses

The Agribusiness Confidence Index showed a 15.02% increase in the business confidence of agribusinesses in South Africa for the second quarter of 2002 compared to the same period in the previous year.

This increase in business confidence was largely driven by expectations of better agricultural conditions, an increase in employment and job creation and higher capital investment. There were also expectations of higher turnovers and operating income, higher export volumes, bigger market share and a drop in debtor provision for bad debt.

Factors that influenced the index negatively were continued expectations of an increase in finance costs and a negative expectation in respect of economic growth in South Africa. This increase in the business confidence of the agribusiness sector in South Africa coincided with the generally positive trends of higher investment and competitiveness.

8.3.3 Third quarter 2002 – Agricultural business confidence at its highest level

The Agribusiness Confidence Index showed a 22.85% increase in the business confidence of agribusinesses in South Africa for the third quarter of 2002 compared to the same period of the previous year. With regards to the previous quarter (2nd quarter 2002), an increase of 20.56% in the business confidence of South African agribusinesses was registered. This is good news for the agricultural environment - especially as there appears to be a sustained upward trend in business confidence.

This increase in the business confidence of agribusinesses was largely driven by highly favourable expectations regarding agricultural conditions and product prices. Although the prices of imported production inputs continued to increase, as a result of the weaker exchange rate, the netto effect implied improved cash flow and profits for agriculture.

At this point it became important that farmers and agribusinesses manage their cash flows correctly and also get rid of debt. There were also strong expectations of a decline in debtor provision for bad debt at agribusinesses.

A factor that still had a negative influence on the index was the continued expectation of an increase in finance costs. The expected growth in inflation had an influence on this.

8.3.4 Fourth quarter 2002 – New highest level in agricultural business confidence

The Agribusiness Confidence Index showed a 28.92% increase in the business confidence of South African agribusinesses for the fourth quarter of 2002 compared to the same period for the previous year. With regard to the previous quarter (3rd quarter 2002), an increase of 6.73% in the business confidence of South African agribusinesses was registered. This was again good news for the agricultural environment - it seems as if the sustained upward trend in business confidence continued.

In addition to expectations of an increase in economic growth and generally favourable agricultural conditions, this increase in business confidence was also driven by an expected increase in nett operating income, employment and capital investment and a decline in debtor provision for bad debt. The expected increase in finance costs, however, had a negative impact on the Agribusiness Confidence Index.

Therefore, depending on the effect of interest rates and fuel costs, agricultural businesses in South Africa were generally optimistic about agriculture as a whole during this period. Rising inflation and an accompanying increase in interest, however, could start putting pressure on nett operating income and economic growth.

8.3.5 First quarter 2003 – Business confidence of agribusinesses increase by 5.81%

The Agribusiness Confidence Index for the first quarter of 2003 shows an increase of 5.80% in the business confidence of South African agribusinesses compared to the corresponding period in the previous year. There was, however, a decrease of 9.60% in agribusiness confidence compared to the fourth quarter of 2002.

The year-on-year increase in business confidence was driven by an expected increase in turnover, nett operating income, capital investment as well as an increase in the market share of agribusinesses in South Africa. General agricultural conditions and economic growth in South Africa also contributed to the improvement in business confidence.

Factors that had a negative influence on the business confidence of agribusinesses in South Africa include the expected decline in volume exports, which was largely as a result of the increase in the value of the Rand against the major currencies. No increase in employment was expected and financing costs remained relatively high compared to two years ago.

According to the Agribusiness Confidence Index, there has been an increase of 35.06% in the business confidence of agribusinesses since 2000. This positive trend can be seen in conjunction with other excellent performances achieved by the South African agricultural sector since 2000 in terms of competitiveness, financial management, labour productivity, exports and increased investment.

South African agribusinesses performed well over the past year on international markets, exploiting the weakened Rand. Local agribusinesses used the opportunity to forge new trade connections and to gain experience in international markets. However, the strengthening of the Rand will cause export realisation to decline and local businesses will have to focus on retaining cost advantages during the coming year.

8.3.6 Second quarter 2003 – Agribusiness confidence declines by 11.75%

The Agribusiness Confidence Index showed a decline of 11.75% in the business confidence of the agribusiness sector in South Africa for the second quarter of 2003 compared to the same period for the previous year. This was the first time that business confidence dropped since the inception of the index in 2000.   However, the index was still 2.48 index points higher than two years ago, which showed that business was still being positive ly experienced.

An expected drop in export volumes and unfavourable farming conditions drove the decline in business confidence. The strengthening of the Rand against the American Dollar undermined exports, while below-normal rainfall over the preceding months rendered farming conditions unfavourable.

Agribusinesses also expected an increase in debtor provision for bad debt as a result of the strong decline in the prices of agricultural products. The expected drop in interest rates, which failed to materialise, also impacted negatively on the business confidence of South African agribusinesses.

The decline in business confidence should not be seen as a negative trend. Business confidence was still higher than two years ago, and 2002 can be regarded as an extraordinary year where high product prices, favourable climatic conditions and an extremely weak Rand were experienced.

8.3.7 Third quarter 2003 – Agribusiness confidence drops by 14.85%

The Agribusiness Confidence Index showed a 14.85% drop in the business confidence of South African agribusinesses for the third quarter of 2003 compared to the figure for the same period for the previous year.

This decline in business confidence can largely be attributed to unfavourable farming conditions, which had a negative impact on agribusinesses' turnover, nett operating income and debtor provision for bad debt. The drought in the Western Cape and parts of Limpopo, as well as an expected dry season, placed further pressure on the business confidence of agribusinesses.

A decline in export volumes was also expected due to the increased value of the Rand against the American Dollar. The stronger Rand also kept product prices low, which placed pressure on the grain industry, in particular, as farmers started planning for the forthcoming production season.

One ray of light at the end of the tunnel was the drop in financing costs, which, in turn, had a positive effect on capital investment by agribusinesses in the rural areas of South Africa. There was also a 16.32% increase in the business confidence of agribusinesses compared to the 2nd quarter of 2003.

8.3.8 Fourth quarter 2003 – 15.32% drop in business confidence of agribusinesses

The Agribusiness Confidence Index for the fourth quarter of 2003 showed a decline of 15.23%, or 22.76 index points, in the business confidence of the agribusiness sector in South Africa compared to the same period for the previous year.

This decline in business confidence was once again mainly driven by the persistent drought in large parts of the country. The unfavourable conditions, as well as low grain prices, exerted further pressure on the turnover, nett operating income and cash flows of farmers and agribusinesses. The negativity in business confidence could also be ascribed to the stronger Rand, which caused a drop in export volume. The stronger Rand also kept product prices low.

The Reserve Bank's interest rate policy focused on inflation targets, and not on the exchange rate. The implication of this was that the strong Rand would remain a reality

for the foreseeable future. However, agribusinesses were also using the opportunity to give renewed attention to capital investment. A drop in employment was also expected - which was not good news for job seekers in the agricultural sector.

One positive contribution to the agricultural business confidence index was the decline in finance costs as a result of the drop in interest rates, which, in turn, had a positive effect on capital investment and market share of agribusinesses in the rural environment of South Africa. Lower finance costs, however, did not make a significant difference to the quality of agribusinesses' debtors; in fact, a strong increase in debtor provision for bad debt was expected due to the pressure in terms of lower product prices and poor agricultural conditions that farmers experienced at that time.

Agribusinesses were also concerned about the fact that economic growth in South Africa could not seem to get off the ground. Statistics South Africa's data indicated that economic growth slowed down further during the second quarter of 2003 compared to the first quarter of 2003, and that economic growth would most likely remain poor in the third and fourth quarter of 2003.

8.3.9 First quarter 2004 – Another decrease in agribusiness confidence

The Agribusiness Confidence Index showed a 13.25% drop in business confidence on the part of South African agribusinesses for the first quarter of 2004 compared to the corresponding period of the previous year. This was the fourth consecutive drop in the Agribusiness Confidence Index.

As was the case in the last quarter, this decline in business confidence was mainly driven by the persistent drought in large parts of the country. The unfavourable conditions brought pressure to bear on agribusinesses' turnover, nett operating income and cash flow. Agribusinesses were therefore expecting an escalation in bad debt.

The negativity in business confidence was also driven by the stronger Rand, which caused a drop in export volume. The stronger Rand also kept product prices low. However, the stronger Rand would force agribusinesses in South Africa to become even more productive and competitive.

Drought has a social, environmental and economic impact on a country, while the direct and indirect impact of a drought is usually wider than the areas that are physically affected by it. The impact of a drought and its ripple effects continue long after it has rained.

The R500 million in drought aid allocated by the government would help to soften the social and environmental impact in rural areas. However, the economic impact of the drought and the ripple effect thereof could have serious implications for the country. Economic growth could come under pressure, while food prices, and therefore inflation, could escalate. This, in turn, could put interest rates under pressure.

8.3.10 Second quarter 2004 – Agricultural business confidence at its lowest level

The Agribusiness Confidence Index showed a 4.45% or 4.56 index point's decline in business confidence for the second quarter in 2004 compared to the same period in 2003. Agribusiness confidence in the 2nd quarter of 2004 is also 2.08% lower than in the same period of 2000.

Although good rain fell over the past few months in large parts of the country, general agricultural conditions were still on a very low level compared to previous years. Normal winter grain plantings were expected in the hope of a better winter rainfall season compared to the drought conditions that prevailed the previous year.

Agribusinesses expected a year-on-year increase in turnover, nett operating income, capital investment and market share. However, compared to the 1st quarter of 2004, all four factors were at a lower level. Agribusinesses were negative in their expectations

towards employment and economic growth in South Africa. Increases in debtor provision for bad dept were also expected.

The stronger Rand continued to exert pressure on exports of agricultural products, which, in turn, had a negative effect on the index. The stronger Rand and low interest rates, however, are favourable for the procurement of implements and other capital items.

It would be fatal if the competitiveness of the South African agricultural sector were to be at the sole mercy of the exchange rate. Higher productivity, sharper business know-how and strategies, superior and differentiated products and processing processes, as well as a stable macroeconomic environment should drive the competitiveness of the agribusiness sector.

8.3.11 Third quarter 2004 – Slight increase in the business confidence of agribusinesses

The Agribusiness Confidence Index for the third quarter of 2004 showed an increase of 0.44% or 0.53 index points in business confidence compared to the same period in 2003. The quarter-to-quarter increase in business confidence on the part of South African agribusinesses was 22.27%.

This increase in agribusiness confidence could largely be attributed to improvement in general agricultural conditions in large parts of the country. General agricultural conditions, however, are still not nearly at the positive levels experienced in 2001 and 2002. In the Western Cape, however, agricultural conditions are less favourable than in 2003. The prices of wheat, canola and barley are considerably lower than a year ago. This had a negative effect on the turnover of agribusinesses in the region.

The strong Rand continued to exert pressure on agricultural exports, which, in turn, has a negative impact on the index. Agribusinesses were also concerned about economic growth in South Africa, which was not getting off the ground. Agriculture and

agriculture-related businesses play an important role in the economy of South Africa through forward and backward linkages and the direct impact of the food and fibre sector on consumer's pocket. It is therefore important that the grouping should become part of the government's economic growth and development, investment and trade promotion initiatives in its own right.

A positive contribution to the agricultural business confidence index was the drop in financing costs as a result of the lower interest rate which also had a positive impact on capital investment and market share of agribusinesses in the rural environment of South Africa. Lower financing costs, however, did not make a significant difference to the quality of agribusiness's debtors books. On the contrary, an increase was expected in provision for bad debt as a result of the pressure of lower product prices experienced by farmers at that time.

8.3.12 Fourth quarter 2004 - 1.33% increase in business confidence of agribusiness

The Agribusiness Confidence Index reflects a 1.33% increase in the business confidence of agribusinesses for the fourth quarter of 2004 compared to the same quarter in 2003. This trend in business confidence follows on the 0.44% increase in business confidence for the previous quarter. The Agribusiness Confidence Index shows a positive trend in business confidence since the third quarter of 2004. Quarter on quarter, there has been a 7.18% increase in business confidence on the part of agribusinesses.

The increase in business confidence can mainly be attributed to the sharp increase in agribusinesses' expectations for positive economic growth in South Africa. The expectation of agribusinesses in terms of increased economic growth in South Africa is 123.99% higher than in the same quarter of 2003.

South Africa's economy grew by 3.9% in the second quarter of 2004. This increase is higher than the 3.6% growth of the first quarter in 2004. The 3.9% growth in the second quarter of 2004 is the 23rd consecutive increase in real gross domestic product.

According to the Reserve Bank (Reserve Bank, 2004) this is the longest period of continuous quarter-on-quarter growth since quarterly data was first made available in 1960. Growth in the agricultural sector was 7.4% in the second quarter of 2004 - an increase when compared to the 4.5% of the first quarter in 2004.

Other factors that had a positive influence on the index include the drop in finance costs and an increase in capital investment as a result of relatively low interest rates. An increase in market share is also expected.

An increase in market share, however, gives rise to greater competition, which in turn forces pressure to bear down on the nett operating income of agribusinesses. Healthy conservatism also causes farmers to cut expenditure, which has an effect on turnover and income. Agribusinesses therefore expect a decline in nett operating income.

The stronger Rand places further pressure on agricultural exports, which impacts negatively on the index. The income of farmers and agribusinesses producing mainly for the export market is under pressure as a result of the strong Rand.

Agribusinesses regard agricultural conditions in general as being 46.28% less favourable than in the same period for the previous year. This places enormous pressure on the debtor book of agribusinesses. An increase in the provision for bad debt is expected as a result of the pressure caused by lower product prices and climatic conditions that haven't improved significantly in large parts of the country.

8.4 SUMMARY

In Figure 8.1 the percentage change in the Agribusiness Confidence Index from the 1st quarter of 2001 to the 4th quarter of 2004 is illustrated. The trends in the factors used to construct the Agribusiness Confidence Index are shown in Figure 8.2. The following interesting trends are observed from the figures:

Trends in the business confidence of agribusinesses in South Africa from 2001 to 2004 can be divided into three phases. There is a definite positive trend in the overall confidence of agribusiness in South Africa from the 1st quarter 2001 to the 4h quarter 2002. There is, however, a small decrease in confidence in the 2nd quarter of 2002. In the 4th quarter of 2002 agribusiness confidence was 44.68% higher than in the 1st quarter of 2001.
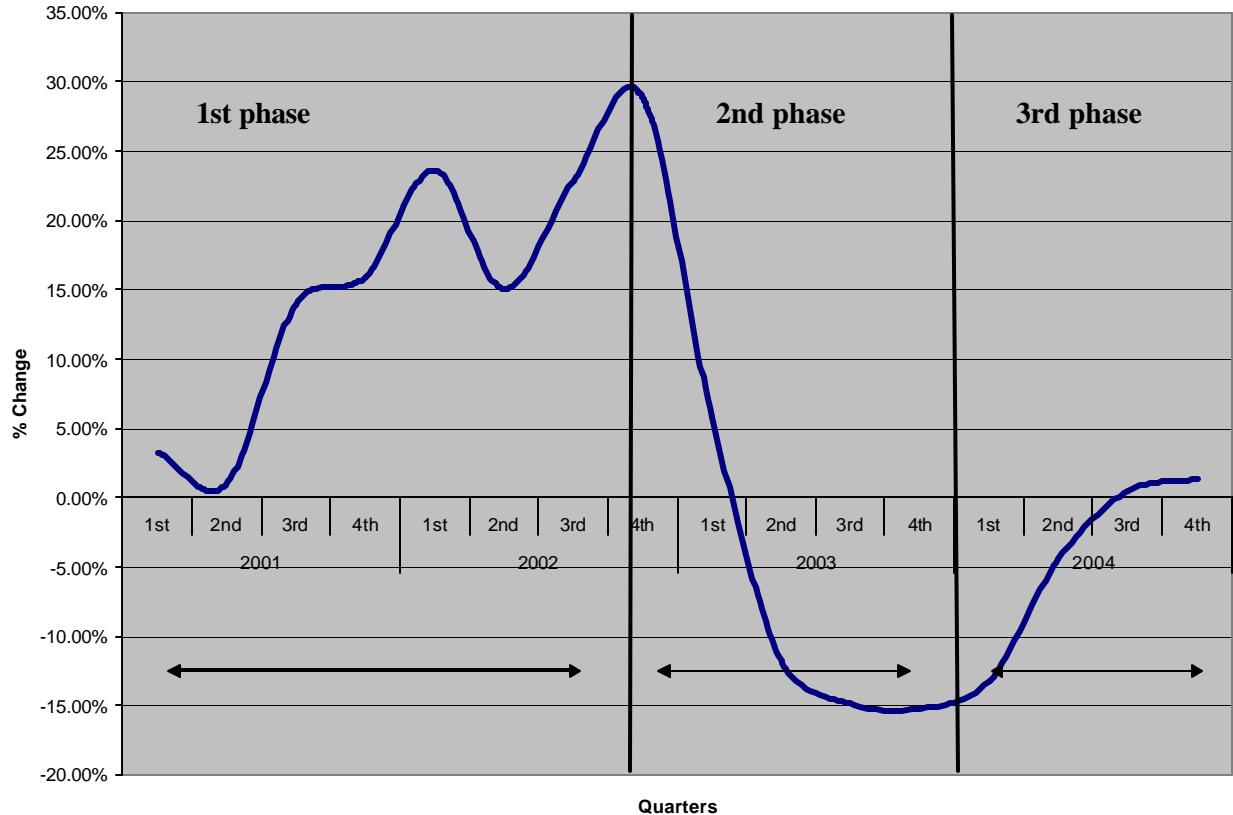
Figure 8.1: Trends in the confidence of agribusinesses in South Africa

Source: Own database
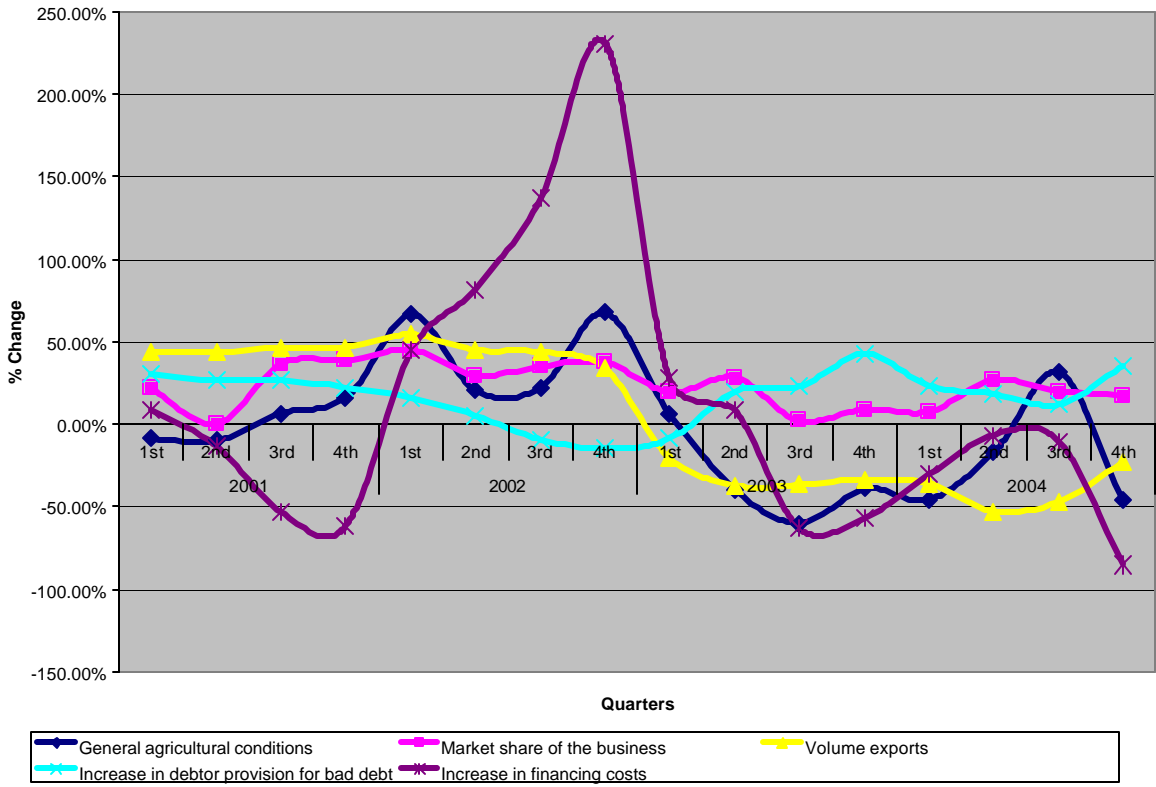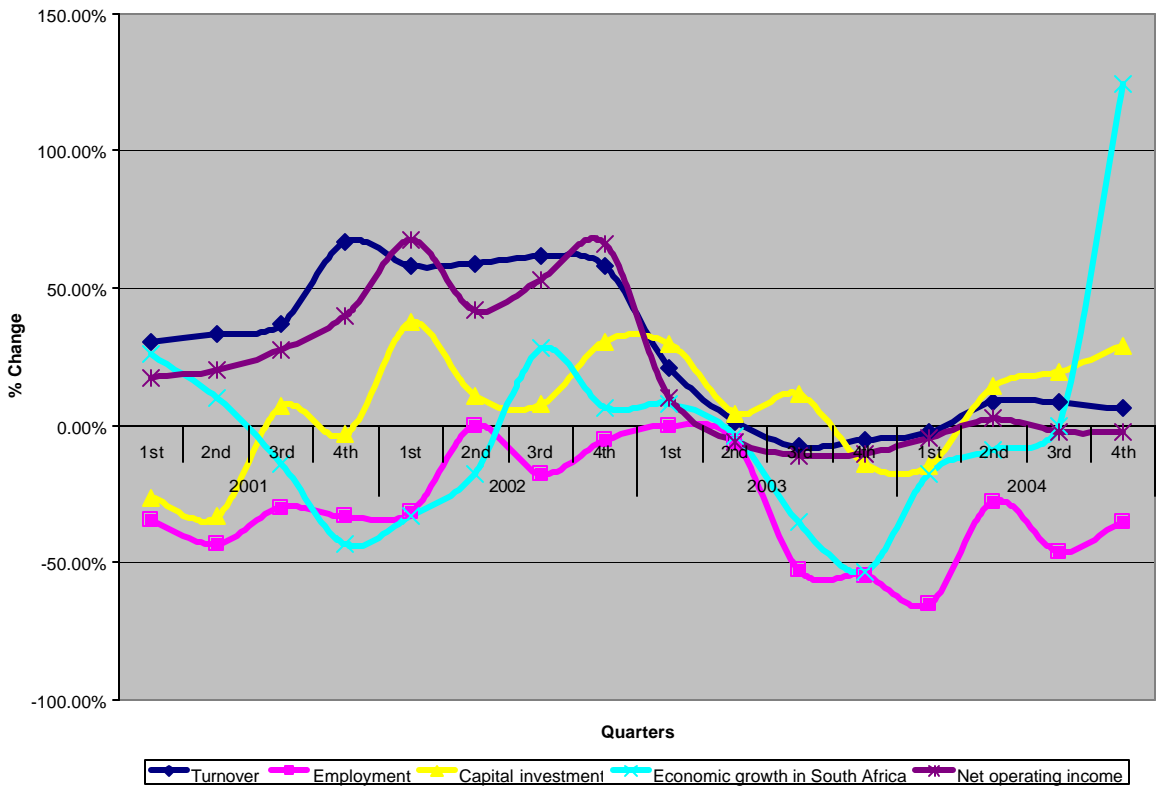
Figure 8.2: Trends in the factors used to construct the Agribusiness Confidence Index

Source: Own database

The factors that contributed to the positive trend in agribusiness' confidence during the 1st phase were the increase in turnover and nett operating income, employment, capital investment, general agricultural conditions, market share and a decrease in debtor provision for bad debt. The increase in turnover and nett operating income were mainly because of the devaluation of the Rand against the major currencies from the 4th quarter of 2001, which resulted in a sharp increase in the prices of the major commodities.

However, the nett operating income decreased slightly in the 2nd quarter of 2002. This situation, combined with a decrease in capital investment, exports, general agricultural conditions and an increase in financing cost were responsible for the decrease in overall confidence of agribusiness in the 2nd quarter of 2002. The general agricultural condition looked 28.61% worse (mainly because of lower than normal rainfall) in the 2nd quarter of 2002 than in the first quarter of 2002, but still better than the same time the previous year. This worsen agricultural conditions was responsible for the slight decrease in net operating income in the 2nd quarter of 2002.

The decrease in debtor provision for bad debt over the two-year period is as a result of the general high producer prices that farmers received for their products over this period. South African agribusinesses also used sound financial management. Exports increased from the 1st quarter of 2001 to the 1st quarter of 2002 and decline in the 2nd, 3rd and 4th quarters of 2002. This trend of increases and decreases in exports can be directly correlated to the value of the Rand against the US$. The expected decrease in exports in the second quarter of 2002 is as a result of an increase in the value of the Rand against the US$ from its high levels in January (R11.60/US$), February (R11.48/US$) and March (R11.49/US$) to April (R11.07/US$), May (R10.14/US$) and June (R10.13/US$). However, expected exports were still higher than in the first three quarters of 2001 when the value of the Rand was around R8/US$.

Factors that impacted negatively on the confidence of agribusinesses over the two-year period were agribusiness expectations of economic growth in South Africa and an increase in financing cost. Expectations for economic growth in South Africa decreased

by 55.06% in 2001 and then made a turnaround in the 1st and 2nd quarters of 2002. However, in the 4th quarter of 2002, expected economic growth in South Africa by agribusinesses was still 52.12% lower than in the beginning of 2001.

The financing cost of agribusiness decreased in 2001 but increased sharply in 2002. The prime interest rate increased by one percentage point in the first quarter of 2001 and the expectation was that another increase would follow. In June 2002 interest rates increased by another percentage point. The result of this was that agribusiness experienced finance cost 17.76% more negative in the 4th quarter of 2002 than in the 1st quarter of 2001.

Since the fourth quarter of 2002, there has been a sharp decline in the business confidence of South African agribusinesses - the start of the second phase in the business confidence of agribusinesses in South Africa. This decline in business confidence is largely driven by the persistent drought that afflicted large parts of the country. These unfavourable conditions put pressure on the turnover, nett operating income and cash flow of farmers and agribusinesses. The negativity in business confidence was also driven by the stronger Rand which resulted in a decline in export volume.

Expectations of agribusinesses in South Africa with regard to turnover, nett operating capital, employment, volume exports and market share dropped respectively by 22.74%, 25.25%, 57.10%, 32.29% and 0.81% from the 4th quarter of 2002 to the 3rd quarter of 2003.

General agricultural conditions worsened by 73.88% from the 4th quarter in 2002 to the 3rd quarter of 2003. The results of this decrease in general agricultural condition, mainly caused by the drought that still prevailed over large parts of the country, had contributed to the 34.41% increase in agribusinesses expectation in the provision for bad debt from the 4th quarter of 2002 to the 3rd quarter of 2003.

One positive contribution to agricultural business confidence from 2003 was the decrease in finance costs as a result of lower interest rates, which in turn had a positive effect on

the capital investment and market share of agribusinesses in rural South Africa. Lower finance costs, however, did not make a significant difference to the quality of agribusinesses' debtor books. On the contrary, a sharp increase in debtor provision for bad debt was expected due to the pressure of lower product prices and poor agricultural conditions experienced by farmers at that point.

From the 4th quarter of 2003, agribusiness confidence began to indicate a slight turnaround – the start of the third phase in the agribusinesses confidence index. Although the percentage change in confidence was still negative, the percentage change was smaller. In the 3rd and 4th quarters of 2004 a positive increase in business confidence was again experienced. This positive increase in agribusiness confidence can largely be attributed to an improvement in the general agricultural conditions in large parts of the country. General agricultural conditions improved with 31.79% from that in the 3rd quarter of 2003.

Another positive contribution to the agricultural business confidence index in the 3rd quarter of 2004 was the decrease in financing costs as a result of the lower interest rate, which also had a positive impact on capital investment and market share of agribusinesses in the rural environment of South Africa. There was a 10.15% decrease in agribusinesses expectations towards financing cost from the 3rd quarter of 2003 to the 3rd quarter of 2004.

An increase in market share, however, gives rise to greater competition, which in turn forces pressure to bear down on the nett operating income of agribusinesses. Healthy conservatism also causes farmers to cut expenditure, which had an effect on turnover and income. Agribusinesses therefore expected a decline in nett operating income.

In the 4th quarter of 2004 a sharp increase in agribusinesses' expectations for positive economic growth in South Africa were experienced. The expectation of agribusinesses in terms of increased economic growth in South Africa was 123.99% higher than in the same quarter of 2003.

The stronger Rand (R6.50/US$) places further pressure on agricultural exports that impacts negatively on the index. The income of farmers and agribusinesses producing mainly for the export market is under pressure because of the strong rand.

Lower financing costs, however, did not make a significant difference to the quality of agribusiness's debtors books. On the contrary, an 11.84% and 35.19% increase was respectively expected in provision for bad debt from the 3rd quarter of 2003 to the 3rd quarter of 2004 and from the 4th quarter of 2003 to the 4th quarter of 2004, as a result of the pressure of lower product prices experienced by farmers at that time.

8.5 TEST OF CONSISTENCY

It is important to link the results of the Agribusiness Confidence Index to other performances in the agribusiness sector in order to assess whether an increase or decrease in the index reflects upon reality. Trends in competitiveness, investment, employment, export and gross domestic product will be discussed.

8.5.1 Competitiveness and investment

The increase in agribusiness confidence from 2000 to the end of 2002 in South Africa goes hand in hand with some other positive trends in the agribusiness sector of South Africa in that period regarding competitiveness and investment (Esterhuizen, Van Rooyen & Doyer, 2002; Esterhuizen & Van Rooyen, 2001).

The assessment performed in Chapter four indicates that there was an increase of 22.50% or 9 index points from 2000 to 2002 in the competitiveness of the South African agribusiness sector. The competitiveness index serves as a measure of a sector's competitiveness in terms of its ability to compete successfully with sustainable growth within the global environment.

The competitiveness index for the South African agricultural sector improved from 0.38 in 2000 to 0.48 in 2001 and to 0.46 in 2002. This upward trend has persisted since 1992, when the index was negative, at –0.16.

Given the direct impact of confidence on the competitive performance of businesses - the decrease in the confidence of the agribusiness sector in 2003 and 2004 will have a negative impact on the competitiveness status of the agribusiness sector in South Africa. One can expect that the competitiveness index will decrease from 2003 onwards (see Figure 8.3 as illustration).
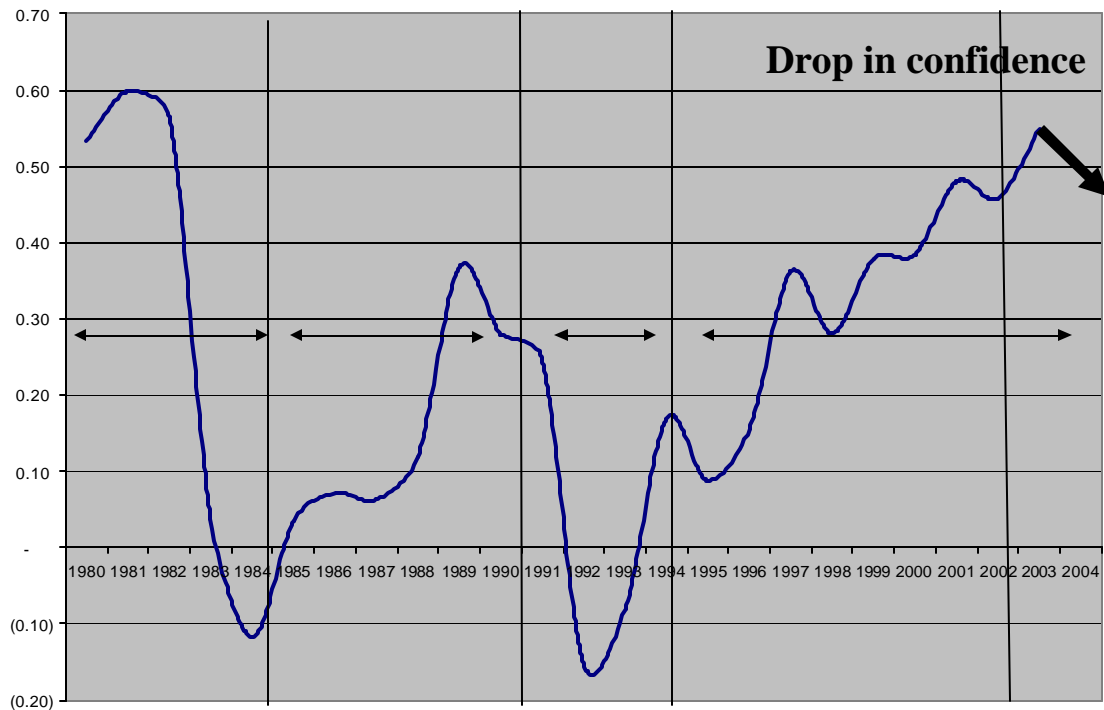
Figure 8.3: An illustration of the possible impact of the drop in the business confidence of the agribusiness sector in South Africa on the competitiveness status of the sector

Source: Own calculation from the RTA index and Agribusiness Confidence Index

There is already evidence of a strong correlation between investment in a sector and the competitiveness and business confidence of that sector. (Esterhuizen & Van Rooyen, 2001). As shown in Chapter four, real investments in agriculture have also increased by 44.44% from 2000 to 2002. This is good news considering that there was a negative trend in investment in the agricultural sector from 1996 to 1999. Real investment in the agribusiness sector of South Africa has, however, decreased in 2003 by 8.76% - the start of a decrease in the business confidence of the agribusiness sector in South Africa.

8.5.2 Employment

In a recent survey by the Agricultural Business Chamber (Agricultural Business Chamber, 2004) important information about the turnover, nett profit and employment of the agribusiness sector in South Africa has been received and analysed. A summary of this information will now follow:

The respondents had a collective turnover for the year ended in 2003 of R18 billion, an increase of 35% from the previous year when the collective turnover was R13 billion. The collective nett profit before tax for the respondents for the year ended 2003 was R448 million, an increase of 675% from the previous year when the collective nett profit before tax for the respondents was R58 million.

The respondents paid tax to the amount of R63 million in 2003. Total assets increased from R7.1 billion in 2002 to R7.5 billion in 2003, an increase of 5.4%. Total liabilities increased from R5.3 billion in 2003 to R5.4 billion in 2004, an increase of only 1.8%. The effect of the relatively lower interest rate can clearly be seen from these figures. The respondents represent 34 195 shareholders.

In Table 8.3 a summary is given of the total personnel corps of the respondents. There is a definite decrease in the total personnel corps of the respondents from 2002 to 2004. From 2002 to 2003 the total personnel corps decreased by 14.7% and from 2003 to 2004

the total personnel corps decreased by 10.8%. This same trend in expectations towards employment was captured by the Agribusiness Confidence Index.

It seems that the discharge was mainly of the temporary staff in agribusinesses. Temporary staff decreased from 34.6% of the total personnel corps in 2002 to 15.2% of the total personnel corps in 2004. Permanent staff makes up 84.8% of the total personnel corps in 2004, while in 2002 it was only 64.4%.

Table 8.3: Trends in the total personnel corps of agribusinesses

	2002	2003	2004
Total Personnel corps	13 253	11 300	10 081
% Permanent	65.4%	78.4%	84.8%
% Temporally	34.6%	21.6%	15.2%

Source: Agricultural Business Chamber, 2004

8.5.3 Exports

Table 8.4 shows the percentage growth in the volume of agricultural and manufacturing exports. The impact of an increase in the value of the Rand against major currencies can clearly be seen from the Table. From 2002 to 2003, exports of agricultural and manufacturing products decreased by 10.13% and 12.40% respectively. The same trend in the expectations towards exports was captured by the Agribusiness Confidence Index.

The stronger Rand not only brought pressure to bear down on agricultural exports, but it also poses the potential threat of import substitutes. From 1990 to 2002 the Rand weakened annually against the US Dollar, with a total decline in value of 306% over this period. It was therefore fairly easy to do long-term planning. Since 2003, however, the Rand has strengthened against the US Dollar by 42%, which makes future planning and investment, especially in export products, problematic.

Table 8.4: Percentage change in the value of exports

	2000	**2001**	**2002**	**2003**
Agricultural	-10.26	22.00	25.95	-10.13
Manufacturing	20.44	12.77	16.11	-12.40

Source: National Department of Agricultural, 2004

8.5.4 Gross domestic product

After four quarters of lustreless growth, which not even matched the rate of population expansion, the rate of increase in South Africa's real gross domestic product firmed appreciably in the first quarter of 2004 (South African Reserve Bank, 2004). Real economic growth accelerated from an annualised rate of 1.5% in the fourth quarter of 2003 to 3% in the first quarter of 2004. The buoyancy of real output in the first quarter was spread throughout all the major sectors of the economy, with the primary and secondary sectors recording increases in the real value added against contractions in the final quarter of 2003. However, the level of the real gross domestic product in the first quarter of 2004 was only about 2% higher than in the first quarter of 2003 (see also Table 8.5).

Growth in real gross domestic product, excluding agriculture, accelerated from an annual rate of 1.5% in the fourth quarter of 2003 to 3.5% in the first quarter of 2004. When compared with the first quarter of 2003, growth in non-agricultural gross domestic product amounted to 2%, roughly the same rate as was attained in 2003 as a whole (South African Reserve Bank, 2004).

Table 8.5: Real gross domestic product - Percentage change at seasonally adjusted annualised rates

	2002				2003				2004
Sectors	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st
Primary sector	7.0	7.5	5.5	3.0	-2.5	-6.5	-6.5	-4.0	3.0
Agriculture	13.5	14.0	9.5	5.5	-5.5	-19.5	-22.0	-9.5	2.5
Mining	2.0	3.0	2.5	1.5	0.5	5.0	6.0	0.0	3.5
Secondary sector	4.5	8.5	6.0	1.5	-3.0	-3.0	-0.5	-1.5	3.0
Manufacturing	5.0	10.0	7.5	0.0	-4.5	-4.5	-1.5	-3.5	2.5
Tertiary sector	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.5
Non-agricultural sector	3.5	5	4	2.5	1.0	1.5	2.0	1.5	3.5
Total	4.0	5.0	4.0	2.5	1.0	0.5	1.0	1.5	3

Source: South African Reserve Bank, 2004

Subsequent to a decline at an annualised rate of 9.5% in the fourth quarter of 2003, the real value added by the agricultural sector increased at a rate of 2.5% in the first quarter of 2004. The same trend in the expectations towards economic growth was captured by the Agribusiness Confidence Index. The improved conditions in the agricultural sector can partly be attributed to the firm output growth in the horticultural sector. Part of the 2003 wheat crop was harvested in the first quarter of 2004. In addition, the late summer rains that fell over most of the country changed agricultural prospects for the better. Estimates of 2003/04 maize crop were accordingly revised upwards (South African Reserve Bank, 2004).

8.6 CONCLUSION

The Agribusiness Confidence Index is determined on a quarterly basis, and the first index was released in 2001, with the year 2000 being the base year. Fifty agribusinesses are participating in conducting the index. Ten factors were identified that will give a true reflection of the business confidence of the agribusiness sector in South Africa. These are: the expected turnover of the business; the expected nett operating income of the business; the employment trends in the business; the trends in capital investment by the

business; expected economic growth in South Africa; the amount of export by the business; the general agricultural conditions in South Africa; the trends in market share by the business; the increase or decrease in debtor provision for bad debt by the business; the increase or decrease in financing costs. The importance of these factors was also determined through a survey. Weights were allocated to each factor according to the survey results.

Trends in the business confidence of agribusinesses in South Africa from 2001 to 2004 can be divided into three phases (see also Table 8.6 for a summary). From the 1st quarter of 2001 to the 4th quarter of 2002 there was a definite positive trend in the confidence of agribusiness. The devaluation of the Rand against the major currencies that resulted in a sharp increase in the prices of commodities played a major role in this positive trend.

The second phase in the business confidence of agribusinesses in South Africa is the sharp decline since the 4th quarter of 2002. This decline in business confidence was largely driven by the persistent drought that affected large parts of the country. The increase in the value of the Rand also had an impact.

From the 4th quarter of 2003, agribusiness confidence began to indicate a slight turnaround – the start of the third phase in the agribusinesses confidence index. This positive increase in agribusiness confidence can largely be attributed to an improvement in the general agricultural conditions as well as a sharp increase in agribusinesses' expectations for positive economic growth in South Africa. The lower interest rates also impacted positively on the confidence of agribusinesses in South Africa.

This trend in the business confidence of agribusinesses in South Africa goes hand in hand with some other trends in the agribusiness sector regarding competitiveness, investments, exports and economic growth. The competitiveness status of the agribusiness sector is in jeopardy because of the decline in the Agribusiness Confidence Index in 2003 and 2004.

Table 8.6: Summary of trends in the Agribusiness Confidence Index

1st Phase
1st quarter 2001 to 4th quarter 2002
(*Devaluation of the Rand against major currencies; Sharp increased in the price of major commodities*)

POSITIVES	NEGATIVES
Turnover ↑	Expectations towards economic growth ↓
Net operating income ↑	Financing cost ↑
Employment ↑	
Capital investment ↑	
General agricultural conditions ↑	
Market share ↑	
Debtor provisions for bad debt ↓	
Exports ↑	

2nd Phase
1st quarter 2003 to 4th quarter 2003
(*Persistent drought; Increase in the value of the Rand*)

POSITIVES	NEGATIVES
Market share ↑	Turnover ↓
Financing cost ↓	Net operating income ↓
	Employment ↓
	Capital investment ↓
	General agricultural conditions ↓
	Debtor provisions for bad debt ↑
	Expectations towards economic growth ↓
	Exports ↓

3rd Phase
1st quarter 2004 to 4th quarter 2004
(*Improvement in the general agricultural conditions; Lower interest rates; Positive economic growth in South Africa*)

POSITIVES	NEGATIVES
Turnover ↑	Net operating income ↓
Capital investment ↑	Employment ↓
Market share ↑	Debtor provisions for bad debt ↑
Financing cost ↓	Exports ↓
Expectations towards economic growth ↑	
General agricultural conditions ↑	

Source: The Agribusiness Confidence Index

CHAPTER NINE

STRATEGIES TO ENHANCE THE COMPETITIVENESS OF THE AGRIBUSINESS SECTOR IN SOUTH AFRICA

9.1 INTRODUCTION

The fifth step in the framework developed in Chapter three, to analyse the competitiveness of the agribusiness sector in South Africa, is to use the intelligence gathered from the previous four steps, and develop strategies to enhance the competitiveness of the agribusiness sector in South Africa.

What are strategies? Strategy is a universal concept. It is not only something every business does, or needs to do; it is a process that occurs at every level of society, from the individual planning his/her life or career, right up to the State considering how to lay the foundations for its economic and social development. This means that strategy is as much about willpower, belief and vision as it is about analysis, planning and execution (Holder & Nicholson, 2004). Strategies, in the sense of global competitiveness, are visions, beliefs, analyses and plans that affect the overall pattern of competition – how businesses can increase their ability to compete successfully in order to achieve sustainable growth within the global environment.

In the previous chapters, both micro and macro factors were identified that are either constraints or enhancements to the competitiveness of the agribusiness sector in South Africa. In this Chapter, a range of strategies at business, government and sector level will be derived, based on the analyses in the previous chapters, to increase the ability of the agribusiness sector in South Africa to compete in a global environment.

9.2 FACTORS THAT INFLUENCE THE COMPETITIVENESS OF THE AGRIBUSINESS SECTOR

There is a strong positive correlation between increased competitiveness of the agribusiness sector in South Africa and the deregulation of the sector. Labour productivity, the exchange rate, investment and R&D also have a direct influence on the competitiveness of the agribusinesses sector in South Africa.

According to the Porter analysis, the following major factors were identified as being constraints to the competitiveness of the agribusiness sector in South Africa. These are:

- ? The quality of unskilled labour;
- ? The availability of skilled labour;
- ? Burdensome administrative regulations;
- ? The competence of personnel in the public sector;
- ? The land reform policy;
- ? The tax system in South Africa;
- ? The labour policy;
- ? The BEE policy;
- ? The trust in the political systems;
- ? Developments in Zimbabwe;
- ? Crime; and
- ? Aids.

The major factors enhancing the competitiveness of the agribusiness sector in South Africa, as identified according to the Porter analysis, are:

- ? The quality of infrastructure in South Africa;
- ? The availability of capital;
- ? The quality and availability of technology;

? The sophistication of local buyers;

? The availability and competitiveness of local suppliers;

? Electricity suppliers;

? Internet service providers;

? Specialised information technology services;

? Regulatory standards;

? Effective supply chain management;

? Intense competition in the local market;

? Biotechnology;

? Unique products, services and processes;

? Quality products;

? Environmentally friendly products;

? Investment in human resources; and

? Innovation.

The sustainability of the competitiveness status of the agribusiness sector in South Africa is, however, being jeopardised by negative changes to the decision-making environment of agribusinesses. The impact of these changes is captured in the Agribusiness Confidence Index, which indicates a decline in the confidence of the agribusiness sector since 2003.

These factors will be used as bases to develop strategies to enhance the competitiveness of the agribusiness sector in South Africa. The strategies will be divided according to the role of government, agribusinesses and the sector.

9.3 THE CENTRAL ROLE OF GOVERNMENT

From the analysis in this study it is clear that government does have a central role in promoting competitiveness performance in the agribusiness sector through a particular set of rules, policies and initiatives. There are some basic principles that government should embrace to serve the proper supportive role that will enable sectors to increase their

competitiveness. Firstly, government must encourage change in an orderly manner and through appropriate incentives; secondly, government must promote domestic rivalry and thirdly, government must stimulate innovation (Cho & Moon, 2002). Government is an important actor in international competition, but rarely does it have the starring role (Porter, 1998). From the analysis in this study, specific policy approaches for the South African government to enhance the competitiveness of the agribusiness sector, include the following:

(i) **Focus on specialised education and knowledge development.** Apart from government's role to promote basic national infrastructure and research in areas of broad national concern, such as health care, government has critical responsibilities in fundamentals such as primary and secondary education systems. The quality of unskilled labour and the availability of skilled labour are currently constraining the competitiveness of the agribusiness sector in South Africa. Capacity is required to manage sustained productivity. Improved labour relations, a reduction in the administration of labour regulations and training across a broad frontier need to be highlighted.

However, generalised efforts for factor creation rarely produce a competitive advantage. The factors that are able to transform into competitive advantage are advanced, specialised and connected to specific industries and industry groups. Mechanisms, such as specialised apprenticeship programs, research efforts in universities related to a specific industry, trade association activities and, most importantly, the private investments of companies, ultimately create the factors that will yield competitive advantage.

(ii) **Avoid intervening bluntly in factor and currency markets.** Currently, the strong Rand is constraining the competitiveness of the agribusinesses sector in South Africa. However, government must avoid intervening in factor and currency markets. By intervening in factor and currency markets, governments hope to create lower factor costs or a favourable exchange rate that will help companies

compete more effectively in international markets. Evidence from around the world indicates, though, that these policies are counterproductive (Cho & Moon, 2002).

The transformation agenda requires certain direct actions by government regarding BEE, land and labour legislation. Policies developed to intervene in such factor markets could work against the upgrading of industries and the search for more sustainable competitive advantage. A fine balance between this requirement and the transformation agenda must be established.

(iii) ***Enforce strict product safety and environmental standards.*** Strict regulatory standards and the production of environmentally friendly products are currently enhancing the competitive success of the agribusiness sector in South Africa. Stringent standards for product performance, product safety and environmental impact, pressure companies to improve quality, upgrade technology and provide features that respond to consumer and social demands. This strategy must continue.

(iv) ***Promote sustained investment***. Government has a vital role to play in shaping the environment which directly influences the goals of investors, managers and employees through policies in various areas. The manner in which capital markets are regulated, for example, shapes the incentives for investors and, in turn, the behaviour of companies. Government should aim to encourage sustained investment in human skills, innovation and physical assets needed by the agribusiness sector. A powerful tool in raising the rate of sustained investment in sectors is a tax incentive for long-term (five years or more) capital gains restricted to new investment in corporate equity.

(v) ***Fight crime***. Crime has been identified by the agribusiness sector as the most constraining factor to their competitiveness. Government and businesses alike have a huge responsibility to fight crime in South Africa. Crime has a negative

influence on investment and the confidence of people and businesses in the future of South Africa. Crime can nullify the competitive advantage established by the agribusiness sector.

(vi)   ***Promote competition, avoid monopolies.*** Regulation of competition through such policies as maintaining a state monopoly, controlling entry into an industry, or fixing prices has two strong negative consequences: It stifles rivalry and innovation, as companies become preoccupied with dealing with regulators and protecting what they already have; and it makes the industry a less dynamic and less desirable buyer or supplier.

As already mentioned, there is a direct correlation between increased competitiveness in the agribusinesses sector in South Africa and the deregulation of the sector, as indicated during the early nineties.

Rivalry among local firms in a country is beneficial for a variety of reasons. Domestic rivalry creates pressure on firms to improve and innovate. Local rivals push each other to lower costs, improve quality and services, and create new products and processes. Vigorous local competition not only sharpens advantages at home but puts pressure on domestic firms to sell abroad in order to grow. Toughened by domestic rivalry, the stronger domestic firms are equipped to succeed abroad. It is rare that a company can meet tough foreign rivals when it has faced no significant competition at home (Porter, 1998). New business formation is also vital to the continuous upgrading of competitive advantage, because it feeds the process of innovation into an industry. New companies serve new segments and try new approaches that older rivals have failed to recognise or to which they are too inflexible to respond to.

An adequate competition policy is thus necessary, one which seeks to strengthen international competitiveness by exposing firms to competition in the local market. Competition in the local market is impeded by hurdles such as licensing

agreements, tariff and quota protection and collusive behaviour (resulting in price fixing). Such entry barriers restrict competition internally and result in a misallocation of resources that retards international competitiveness.

The removal of quotas and licensing requirements is thus a critical aspect of competition law and policy. A related aspect is the prevention of collusive behaviour, such as horizontal agreements that result in price fixing and restrictions on outputs. A competition policy much seeks to streamline regulation of mergers, acquisitions and joint ventures. While it is fashionable today to call for mergers and alliances in the name of globalisation and the creation of national champions, these can often undermine the creation of competitive advantage. They can, however, enhance efficiency by allowing large merged firms to enjoy scale economies or by replacing inefficient, entrenched management. Competition authorities need to conduct technical and economic analyses before permitting mergers, acquisitions or joint ventures in order to forecast their effect on competition in the agribusiness sector.

vii)   ***Support fair trade in an unfair environment:*** The international trade environment is by no means fair and equal. The South African agribusiness sector is a small player in this global environment. The big industrial country trade blocs are highly competitive, aggressive and subsidised. The agribusiness sector in South Africa, in co-operation with government, needs to develop focussed strategies in this context. Both export strategies and anti-dumping measures are important. A stronger "new market" development thrust between the agribusiness sector and government is required. A "South African Identity", depicting South African agribusinesses as worthwhile and high quality business partners and the current "proudly South African" and "Brand SA" marks, will support such a "globalisation impact strategy".

9.4 THE ROLE OF AGRIBUSINESSES

Today's world is competitive. In order to survive the competition, and to thrive on it, businesses must perform in ways that provide them with a competitive edge over their competitors – that will make people want to buy from the business and do repeat business with them. Businesses must display a driving will to be chosen over and above their competitors.

In order to survive and thrive, today's agribusiness managers have to think and act strategically. Today's customers are well educated, aware of their options, and demand excellence. For this reason, agribusiness managers today must think constantly about how to build a capable workforce and how to manage it in a way that it delivers the goods and services in a manner that provides the best possible value to the customer.

Ultimately, only the companies themselves can achieve and sustain competitive advantage. In particular, they must recognise the central role of innovation – and the uncomfortable truth that innovation grows out of pressure and challenge. It takes leadership to create a dynamic, challenging environment. It takes leadership to recognize the all-too-easy escape routes that appear to offer a path to competitive advantage, but are actually short-cuts to failure. For example, it is tempting to rely on cooperative research and development projects to lower the cost and risk of research. This can, however, divert the company's attention and resources from proprietary research efforts and may all but eliminate the prospects for real innovation (Cho & Moon, 2002).

Labour regulations, crime, the quality of physical infrastructure and labour costs are externally manipulated factors over which agribusiness have relatively little control. Product quality, cost of production, managerial capacity and labour skills, however, are factors over which firms have a large degree of control. From the analyses in the previous chapters, a number of key focus areas emerge for success at firm level and over which agribusinesses have some control. These include the following:

(i)   *Create internal pressures for innovation*.   Innovation at firm level is the introduction of new goods and services. The agribusiness sector in South Africa rated innovation as a major enhancement to their ability to compete. However, the agribusinesses need to adapt continuously to changes in consumer demands and to new sources of competition. Products do not sell forever; in fact, they don't sell for nearly as long as they used to, because so many competitors are introducing so many new products all the time.

Agribusinesses in South Africa should seek out competitive pressure and challenge, not avoid them. Part of this strategy is to take advantage of the domestic market to create the impetus for innovation. In order to do that, agribusinesses should sell to the most sophisticated and demanding buyers and channels; seek out those buyers with the most difficult needs; establish norms that exceed the toughest regulatory hurdles or product standards; source from the most advanced suppliers; treat employees as permanent in order to stimulate upgrading of skills and productivity.

(ii)   *Increase productivity.* To sustain competitive advantage, the agribusiness sector in South Africa must achieve more sophisticated competitiveness over time, through providing higher-quality products and services or producing more efficiently. This translates directly into productivity growth (Porter, 1998).

Productivity defines competitiveness for a particular sector, industry or firm (Porter, 2002). Productivity, rightly understood, encompasses both the value that an industry's products command in the marketplace and the efficiency with which they are produced. Improving efficiency on its own, or producing more units per unit of labour or capital, does not necessarily elevate wages and profits unless the prices of the products or services are stable or rising. As global competition places greater pressure on the price of standard goods, efficiency alone is insufficient. Advanced industries improve their competitiveness more by driving up the value of their products and services (because of better technology,

marketing and associated services, for example) and moving into new fields through innovation, rather than by producing standardised products at a lower cost (Porter, 1998).

(iii)   ***Increased flexibility.*** Across every industry, today's business environment is becoming more complex, fast paced and unpredictable. These market dynamics give rise to the need for business flexibility to cope with constant change and to get ahead of the competition. From the analyses it was clear that South African agribusinesses is not flexible enough to exploit business opportunities that originate from a changing environment.

Flexibility often separates the winners from the losers in the world of competition. Agribusinesses in South Africa can increase their flexibility by aligning business production, processes and infrastructure, and by using integration to connect people, processes and information across the value chain.

(iv)   ***Embrace domestic rivalry.*** Intense competition in the local market is rated by the agribusiness sector in South Africa as the third most enhancing factor to its competitiveness. A strategy to welcome domestic rivalry must prevail. A company requires capable domestic rivals and vigorous domestic rivalry to compete successfully globally. Vigorous domestic rivalry creates sustainable competitive advantage. It is, however, also important to grow internationally and seeking international partners and acquisitions. Agribusinesses should therefore clarify their strategic approaches in local and global markets.

(v)   ***Participate in supply chain management.*** From the Porter analyses it was clear that the efficiency of supply chain management among agribusinesses in South Africa has increased. This indicates that agribusiness managers are alert to this particular challenge. This factor will, however, require more attention. Spekman, Kamauff & Myhr (1998) remarked that success is no longer measured by a single transaction; competition is, in many instances, evaluated as a network of co-

operating companies competing with other firms along the entire supply chain. This strategy is not just a strategy to cope with risk, but it is also a source of sustainable competitive advantage. Van Rooyen, Esterhuizen & Doyer (2001) also altered this view with the paper: "Creating a chain reaction – a key to increased competitiveness in South African agribusiness".

Boehlje (1996) stated that: "The expanding use of contractual and other forms of negotiation-based linkages, and the decline in impersonal market based transactions, reduces price and other risks". This approach, also known as "supply chain management", could increase the efficiency with which consumer needs are being met and recognised.

Supply chain management is an integrated approach for planning, controlling and optimising the flow of goods and information through a distribution channel from suppliers to end users. Generally, several independent firms are involved in the activities from producing and manufacturing of product to placing it in the hands of the end users. The network, through which these firms pass goods and simultaneous information, can also be referred to as a supply chain or network. Supply chain members may include customers, suppliers, farmers, carriers, vendors, distribution centres, and other third parties.

According to Dyer (1996) transformation to efficient supply chain management requires changing processes of choosing and working with suppliers and the personal relationships between employees of firms in the supply chain. All the firms in the supply chain must have a common vision of how to collaborate in order to create value jointly. They have to recognise that trust in relationships will prosper only if both parties share in the rewards in a fair and sustainable manner.

Open Market Negotiations	Co-operation	Co-ordination	Collaboration
Price based discussions	Fewer suppliers Long-term contract	Info links	Integration Joint planning Technology sharing
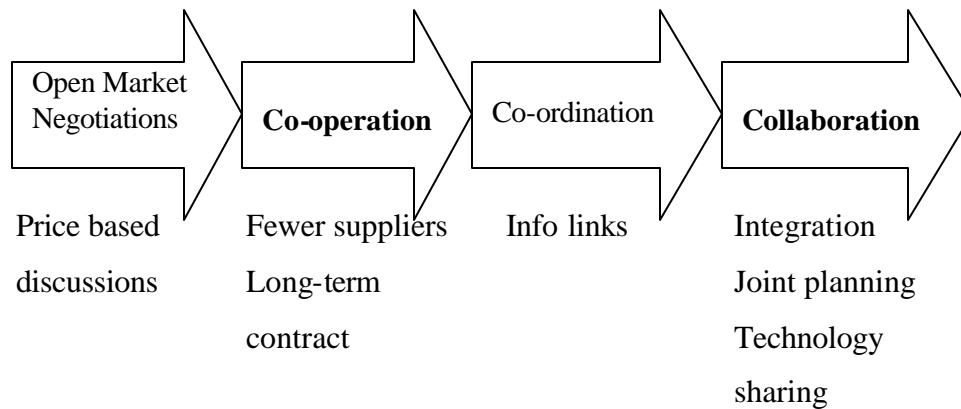
Figure 9.1: The key transformation from open-market negotiation to collaboration
Source*:* Spekman *et al*, 1998

The transformation from a relationship consisting merely of open market negotiations to being supply chain partners is depicted in Figure 9.1. To move from one level to another require changes in mind set and strategic orientation among supply chain partners. A transformation from open market negotiations to co-operation is considered as a starting point for supply chain management and it requires the partners to engage in longer-term contracts.

A further transformation from co-operation to co-ordination requires strong information linkages, trust and commitment. The final stage of this transition is the movement from co-ordination to collaboration, which requires higher levels of trust, commitment and information sharing. They must also share a common vision of a future goal and plan jointly to reach such goals (Spekman *et al*, 1998).

However, it must be stressed that not all relationships must result in collaboration. The level of intensity of the relationship will depend on the relative complexity and importance of the transactions, only complex and important transactions will result in a collaborative relationship as illustrated in Figure 9.2.

	High	Complexity	**Low**
High	**Collaboration**		**Co-ordination**
Strategic Importance			
Low	**Cooperation**		**Open-Market Negotiation**

Figure 9.2: Supply chain management strategy

Source: Spekman *et al*, 1998

Supply chain management is basically converts the supply chain from a "push" to a "pull". A "push" is to create and produce products through the chain from which the customer or consumer can select, while a "pull" is to produce products through the chain, which were designed or selected by the customer or consumer. Thus, the product is "pulled" through the chain by collaboration and co-ordination between members in the chain.

In many cases, the primary motivation for this more integrated system is to provide more accurate signals to producers and input suppliers as to what the ultimate end user, the consumer, wants in his food products (Boehlje et al., 1995).

Therefore, in order to be competitive in the global economy, a supply chain management strategy should be of the utmost importance for agribusiness in South Africa. The transformation to efficient supply chain management requires trust and integrity and changing processes of choosing and working with suppliers as well as improved personal relationships between employees of different firms in the supply chain. All the firms in the supply chain must therefore have a common vision of how to collaborate to create value jointly. They have to

recognise that trust in relationships will only flourish if both parties are confident about sharing in the rewards in a fair, sustainable manner.

(vi) **Drive for quality.** Agribusinesses identified quality of their products as the most important enhancement to their competitive success. This strategy must continue. Quality embodies the excellence of a product, flaunting its attractiveness, lack of defects, reliability and long-term dependability. The importance of quality and the standards expected as acceptable quality has increased dramatically in recent years. Companies cannot get away with offering poor-quality products anymore as they used to a few years ago.

Customers now demand high quality and value and will accept nothing less. Providing world-class quality requires a thorough understanding of what quality really is. Quality can be measured in terms of performance, additional features, reliability, conformance to standards, durability, serviceability and aesthetics. Only by moving beyond broad, generic concepts like "quality" towards identifying the more specific elements of quality, can companies identify problems, target needs, set performance standards more precisely and deliver world-class value.

(vii) **Lower cost of production.** Cost competitiveness means that your costs are kept low enough so that you can realise profits and price your products (goods and services) at levels that are attractive to consumers. Needless to say, if a desirable product is offered at a low price, it is more likely to sell.

Low prices can be offered by managing your costs and keeping them down. This means being efficient - the accomplishment of goals by using resources wisely and minimising waste. If a company's cost structure is competitive (as low as or lower than its competitors'), success is not guaranteed, but a company cannot be successful without a competitive cost structure.

Costs include money spent on inputs, transformation processes and delivery of outputs to the market. Raw materials, equipment, capital, manufacturing, marketing, delivery and labour are just some of the costs that need to be managed carefully.

The agribusinesses sector in South Africa indicated that the high cost of production in South Africa is constraining its ability to compete successful. Rationalisation, cost cutting, labour management and cost effectiveness are important strategies that need to be implemented more efficiently. The agribusiness sector also indicated that the high cost of acquiring technology has been constraining its competitiveness. Joint ventures with the R&D and the technology industry need to be prioritised to allow firms to maintain "cutting edge" positions in a competitive world.

(viii) ***Know and understand the size of the world economy and its markets.*** At the very least it is important that agribusinesses must have a basic understanding and knowledge of the world economy. Which countries are the 'movers and shakers'? Which countries are displaying significant economic growth? There are some 230 countries in the world, with a total population of approximately 6.2 billion (Roux, 2002).

Table 9.1 provides a bird's-eye view of the world economy and population. From this table it is clear that three-quarters of the world's population - i.e. three out of every four people on this planet – have a GDP per capita of US$8 per day or less. 85% of the world's population produces about 22% of the world's economy, which obviously means that 15% of the world's population account for 78% of the world's production of goods and services. It is pretty clear where the world's economic power is concentrated. It's also clear that the distribution of income, wealth and opportunities in the world is highly skewed.

Table 9.1: A bird's-eye view of the world economy and population

Region	Annual GDP per capita in 1999 US$	Population as % of world population	GDP as % of world GDP	Surface area as % of world surface area
Low-income countries	< 756	40.5	3.5	25.6
Lower middle-income countries	756 – 2 995	35.0	8.5	33.5
Upper middle-income countries	2 996 – 9 265	9.6	9.7	16.9
High-income countries	> 9 265	14.9	78.3	24.0

Source: World Bank, 2000

Table 9.2 provides some interesting information on the twenty largest economies in the world. From Table 9.2 it is clear that five countries in the world out of 230 countries produce half of the world's entire output of goods and services. These countries are the United States of America, China, Japan, India, and Germany. The ten largest economies produce two-thirds of the world economy, the fifteen largest countries produce three-quarters of the world economy and the twenty largest countries produce virtually 80% of the world economy (Roux, 2002).

South Africa has the twenty largest economy in the world. However, having a large economy does not necessarily imply a rich and wealthy economy. The measurement of the size of a country's economy is simply an indication of the total volume or quantity of goods and services produced. This measurement does not give an indication of how these goods and services are shared or distributed among the inhabitants of the country. Although South Africa boasts one of the larger economies in the world, the combination of a fairly large population and a much skewed distribution of economic activity results in a rather modest GDP per capita.

Despite having a "large" kind of economy, South Africa's share of the world economy is a modest 0.9%. This means that when engaging in economic and

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financial relations with major players in the world, South Africa, like most other countries in the world, has to more or less abide by the 'rules of engagement'. It also means that economic, financial and other events in the world can have a distinct bearing on South Africa's economic and socio-economic fortunes (and misfortunes). In brief: South Africa is not in a position to set the "rules of the game" – if we want to play the game, we have to accept the rules as they are and play accordingly, or get out of the game (Roux, 2002).

Table 9.2: The who's who of the world economy

Rank	Country	GDP as % of world GDP	Cumulative % of world GDP	Population as % of world GDP	Cumulative % of world population	GDP per capita (PPP US$)
1	USA	21.8	21.8	4.8	4.8	31 872
2	China	11.1	32.9	21.5	26.3	3 617
3	Japan	7.7	40.6	2.2	28.5	24 898
4	India	5.5	46.1	16.9	45.4	2 248
5	Germany	4.8	50.9	1.4	46.8	23 742
6	France	3.3	54.2	1.0	47.8	22 897
7	UK	3.2	57.4	1.0	48.8	22 093
8	Italy	3.1	60.5	1.0	49.8	22 172
9	Brazil	2.9	63.4	2.9	52.7	7 037
10	Russian Fed.	2.7	66.1	2.5	55.2	7 473
11	Mexico	2.0	68.1	1.7	56.9	8 297
12	Canada	2.0	70.1	0.5	57.4	26 251
13	Korea, rep	1.8	71.9	0.8	58.2	15 712
14	Spain	1.8	73.7	0.7	58.9	18 079
15	Indonesia	1.5	75.2	3.6	62.5	2 857
16	Australia	1.1	76.3	0.3	62.8	24 574
17	Argentine	1.1	77.4	0.6	63.4	12 277
18	Turkey	1.0	78.4	1.1	64.5	6 380
19	Netherlands	0.9	79.3	0.3	64.8	24 215
20	South Africa	0.9	80.2	0.7	65.5	8 908

Source: Roux, 2002

(ix) ***Design for Social responsibility and successful BEE***. Social development and upliftment must be one of the most important strategies that will influence the sustainability of a competitive advantage in the agribusiness sector of South Africa. It is a major challenge to change the South African historical dualism with its legacy of exclusion and discrimination along racial and gender lines, as well as to redress the characterisation of the agribusiness sector as having skewed levels of ownership, managerial and technical skills and a lack of access to economic opportunities.   The core focus of this strategy must be economic development in general, to support black economic empowerment and to enable historically disadvantage groups in the agribusiness sector to acquire economic ownership, gain access to assets and to exploit and participate in business opportunities along the full agribusiness value chain.

Successful social empowerment requires new initiatives in the sphere of social responsibility programmes, by empowering those who cannot, but aspire to, participate as entrepreneurs in the agribusiness sector. This includes efforts to improve the living conditions of labourers, to enhance life skills in the broader labour community through education and training programmes as well as to ensure a more balanced relationship between employee representatives and employers in the sector.   These new initiatives must ensure that historically disadvantaged groups are integrated into the sector in such a way that they can make a constructive contribution to the competitive success of the agribusiness sector and to the country at large.

(x) ***Managing for competitive advantage.*** Management is about aiding a firm's survival and to obtain victory in competition with other companies.   If agribusinesses are well managed, it is far more likely that they will be successful and become leaders in the highly competitive business world. In order to survive and obtain victory, agribusinesses have to gain advantage over competitors. Agribusinesses need to be better than their competitors at doing valuable things for their customers.   Agribusinesses could gain competitive advantage by

adopting management approaches that would satisfy customers through cost competitiveness, high quality products, speed and innovation.

Competitive advantage arises from leadership that harnesses and amplifies the forces in the diamond to promote innovation and upgrading. Too many companies and top managers misperceive the nature of competition and the task before them by focusing on improving financial performance, soliciting government assistance, seeking stability and reducing risk through alliances and mergers.

Today's competitive realities demand leadership in the agribusiness sector of South Africa. Leaders believe in change; they energise their organisations to innovate continuously; they recognise the importance of their home country as integral to their competitive success and work to upgrade it. Most importantly, leaders recognise the need for pressure and challenges. They are prepared to sacrifice the easy life for difficulty to obtain, ultimately, sustained competitive advantage. This must be the goal, for the agribusiness sector in South Africa: not to merely survive, but to achieve international competitiveness on a sustainable basis.

9.5 RESPONSIBILITY AT SECTOR LEVEL

The complexity of creating a competitive and equitable South African agribusiness sector is far reaching. Collective action will be required to initiate, focus, align, coordinate, monitor and evaluate initiatives. Value adding through collective action should guide the choice of sector level initiatives. From the analyses the following activities should be considered:

(i) *Develop a strategic partnership between government and the agribusiness sector.* The agribusiness sector in South Africa indicated that trust in the political systems, are currently constraining their ability to compete effectively. The

Agricultural Business Chamber (ABC), the umbrella body for the agribusiness sector in South Africa, have as its main task to facilitate positive, constructive and proactive discussions between the government and the sector. In performing this task the ABC is actively involved in the formulation of policy, strategy and legislation to increase the agribusiness sector's competitiveness on a sustainable basis.

However, it is clear that this process must involve more collective action and efficient communication in order to establish trust and confidence in the political systems.

(ii)   *Generic action to improve the national diamond.* The agribusiness sector in South Africa has a vital stake in making their domestic environment a better platform for international success. Part of the sector's responsibility is to play an active role in working with its domestic buyers, suppliers and channels to assist them in upgrading and extending their own competitive advantages. The health and strength of the national diamond will only enhance the South African agribusiness sector's own rate of innovation and upgrading. In nearly every successful competitive sector, companies take collective action towards creating specialised factors such as human resources, scientific knowledge and infrastructure in the sector (Porter, 1998).

Activities to be considered by the agribusiness sector in South Africa will include generic, market development and promotion, the mobilisation of appropriate training and education strategies and systems, sector level knowledge and information provision, development of BEE and other transformation strategies and models, investigation of cost factors constraining business development, focussed investigation and analysis of constraints to competitiveness and the development and direction of sector level strategies and investments in research and innovation, etc. It is also important for the agribusiness sector to develop a strategic plan within which Sector Education and Training Agencies (SETAS)

could function. A clear demand statement by the agribusiness sector should be developed to guide human capital development funded by SETAS.

(iii)   ***Towards an "Agribusiness Development Policy" for South Africa.***   The agribusiness sector will operate increasingly as integrated business networks. Supply chain relationships will dominate business contracts. Industries within this sector will have to collaborate with the public sector, science councils and universities to promote and finance cutting edge R&D and technology development. For this purpose, the agribusiness sector should push for an "Agribusiness Development Policy". Currently, agribusiness falls between the agriculture, trade and industry policy. No clear agribusiness policy focus exists. A more focussed approach to policy development and implementation will provide a more favourable environment for the agribusiness sector in South Africa to operate more competitively.

The Agricultural Business Chamber accepted a brief by its members to promote an agribusiness policy framework for South Africa aimed at "creating competitive advantage for South African agribusinesses".   The following strategic programmes were identified (ABC, 2001):

? Market driven innovation focussed on consumer demands, locally and in the international market.

? Capacity development, which includes improved business intelligence systems, training, black empowerment initiatives, and network development.

? Rationalisation of efforts to mobilise public sector support, and to stimulate R&D and technology development, etc., and

✍ A strong and positive "South African Identity" in the international environment, by promoting South African agribusiness as worthwhile, reliable and quality partners to do business with.

9.6 CONCLUSION

The competitiveness of the agribusiness sector in South Africa will increase and be sustained when the business environment of agribusinesses in South Africa become dynamic, stimulating and intensely competitive. On the other hand, agribusinesses will experience a negative trend in competitiveness if the local business environment excludes agribusinesses from innovation and productivity.

The key opportunity for the agribusiness sector in South Africa has, and always will, be new and expanding markets within South Africa and around the globe combined with a shift towards value-added commodities. Changes in the global marketplace result from increased and changing global food consumption, trade liberalisation and increasing demands for environmentally-sustainable agricultural products. The challenge for the agribusiness sector in South Africa will be to identify and secure these markets. An equal challenge is to identify production systems that are economically unsustainable, and to eliminate the individual and regional dependency on them. The agribusiness sector in South Africa must be aggressive, innovative, adaptable, diverse and responsible.

CHAPTER TEN

SUMMARY AND CONCLUSIONS

10.1 INTRODUCTION

In today's global economy, agribusinesses face an increasingly competitive trade and production environment. Government interventions and support also impact heavily on this environment.   This requires continued vigilance to stay ahead of rivals. Competitiveness is therefore a major preoccupation of national, regional and local governments, representative sector and industry groups and agribusiness managers worldwide, as they seek to strengthen the ability of their countries, specific sectors and businesses to compete successfully.   There is growing recognition for the fact that competitiveness requires more than merely the exploitation of a liberal or free trade environment.   Domestic policies and institutions have a critical influence on countries and sectors that wish to reap the full benefits of trade liberalisation.

The main focus of this study was to answer the following question: "Can the South African agribusiness sector successfully compete on a sustainable basis within the global environment?". Specific issues that the study attended to included: a description of the theoretical foundation of competitiveness and the development of a clear definition and measurement methodology of competitiveness; the development of a framework for measuring, explaining and analysing competitiveness; the development of a framework to determine and analyse the status of the decision-making environment; and to apply this framework on the agribusiness sector in South Africa.   This study also provided a contribution to structural strategic analysis and development in the agribusiness sector of the South African economy.

In this Chapter the study is summarised and concluded. A discussion on the contribution this study has made to the Agricultural Economic profession and an agenda for further research is also included.

10.2 SUMMARY OF STUDY

The agribusiness sector worldwide is changing profoundly, and the changes appear to be accelerating. Global food trends are driven by consumer behaviour and technology. No one doubts that the food consumer is more demanding in terms of attributes of their food products (quality, safety, nutrition, convenience, etc.) and services surrounding their eating experience. Furthermore, the agribusiness sector is being rapidly transformed from a transactional market with limited loyalty to a relationship market with tighter linkages, alliances and trust across the food chain from input suppliers to consumption. The distribution channel from input manufacturing to producer and food processor to retailer is also being consolidated to reduce costs, streamline logistics, accelerate product flow, maintain and enhance quality and respond more quickly to customer demands.

The rapid transmission of consumer demands through the supply chain to primary producers and input suppliers is of great importance if agribusinesses want to compete effectively and add value to their product. The need to comply with consumer demands also forces the producers to put certain demands to input suppliers in terms of environmental, cultural and social requirements. Information flows, research and development and new innovations are important components to allow supply chains to function effectively and efficiently.

Globalisation is not a recent phenomenon it merely represents another step in the journey of a thousand years of human progress. However, the escalation in globalisation over the past two decades is a result of one of the most fundamental basics of our democratic society, namely competition, especially on the economic side of human activity.

World trade is driven by the competitive advantage that firms and supply chains in countries have in producing different goods and services. In general, South Africa's agribusiness sector is currently marginally competitive. To compete in a global economy, South African agribusinesses will have to be competitive, scarce resources will need to be optimally utilised and the focus will have to be on the creation of pockets of excellence embracing the concept of the agricultural value chain. The focus is on each input supplier, producer and processor's ability to compete globally, i.e. it is not good enough anymore for farmers to merely compete at farm gate level, whilst the locally processed commodity that is sold to the consumer, is not competitive in the world market.

The main objective of this study was to conduct a comprehensive analysis on the competitiveness of the agribusiness sector in South Africa. Neither a clear definition of competitiveness nor a comprehensive framework for analysing competitiveness has been developed for agriculture in South Africa. Hence, a definition for competitiveness has been formulated as being *the ability to compete successfully in order to achieve sustainable growth within the global environment, while earning at least the opportunity cost of returns on resources employed.* The definition is driven by factors related to the comparative and competitive advantages of an industry and the manner in which this is manifested by sustainable trade.

A 5-step framework was developed for measuring and analysing competitiveness in the agribusiness sector. Three instruments emerged from this *viz* the Agribusiness Competitiveness Status index (ACS) based on the Relative Trade Advantage (RTA) method; the Agribusiness Executive Survey (AES) based on the determinants of competitiveness, as described by Porter; and the Agribusiness Confidence Index (ACI) measuring the status of the decision-making environment in which agribusinesses are positioned to perform. Using the 5-step framework, the four hypotheses investigated by the study were all found to be true:

Firstly, a trend analysis (ACS) of the competitiveness of the agribusiness sector reveals a remarkable achievement, namely that, despite difficult conditions, the sector generally succeeded in operating more competitively during the past ten years. Agribusinesses in South Africa clearly began to focus on the right competitive factors. These includes, improved business know-how of South African agribusinesses; the 2nd phase of deregulation of the agricultural sector, which amongst others resulted in a change in business form from co-operatives to companies; the elimination of non-competitive business; the delivery of quality products and an increase in labour productivity in the agribusiness sector.

Secondly, both micro and macro factors are impacting on the competitiveness status of the agribusiness sector in South Africa. The AES was used to determine the views and opinions of executives in the agribusiness environment on factors constraining and enhancing competitiveness. The high cost of crime, inflexible labour policy and the competence of the personnel in the public sector are some of the factors constraining the competitiveness of the sector. The production of affordable, high quality products, intense competition in the local market and continuous innovation are some of the important key success factor enhancing the competitiveness of the sector. The sector also demonstrates a positive trend in the determinants of competitiveness. These factors have a direct impact on the sustainability of the competitiveness status of the agribusiness sector in South Africa.

Thirdly, there exists a clear relationship between changes in the decision-making environment of the agribusiness sector in South Africa and the competitiveness performance of the sector. These changes in the decision-making environment of the agribusiness sector in South Africa have a direct influence on the status of business confidence in the sector. The business confidence of agribusinesses, on the other hand, has a direct influence on the competitive performance of the sector. This relationship influences the sustainability of the competitiveness status of the sector.

Fourthly, the ACI reveals that changes in the decision-making environment of the agribusiness sector in South Africa are directly in correlation with the climatic conditions of the country. This demonstrates the nature and particular risks of agriculture and distinguishes agribusiness activities from other businesses. There is also a direct correlation between the changes in the decision-making environment of agribusinesses and changes in macro economic influences such as, interest rates, the exchange rate and economic growth. Micro economic expectations like an increase or decrease in turnover, an increase or decrease in nett operating income, employment trends and capital investments also influence the confidence of the agribusiness sector in South Africa.

The framework developed in this study combine quantitative and qualitative analyses and was used to developed strategies to enhance the competitiveness of the agribusiness sector in South Africa. The analytical and empirical content and the resulting findings therefore enable this study to act as a basis for strategic planning, policy development and strategic positioning by the agribusiness sector in South Africa and will allow for future monitory and evaluation of competitive performance.

10.3 CONTRIBUTION TO THE AGRICUTURAL ECONOMIC PROFESSION

"Should the agricultural economics profession in South Africa be concerned with the increasing importance attached to agribusiness and especially the disciplines of competitiveness? With the increasing industrialisation of agriculture in South Africa and globally, there is no doubt that agribusiness issues will become more important and the profession in South Africa probably needs to get involved in teaching and research in this area to keep its relevance."

- Ortmann, 2001

Competitiveness is widely discussed, in the media, by politicians, by businessmen and by economists. Regrettably, they do not all speak the same language. There is a considerable misunderstanding between these groups regarding the precise meaning of

the term competitiveness. One major source of confusion arises due to the different angles and levels at which competitiveness can be measured. After a comprehensive study of the evolution of the competitiveness theory, a universal definition of competitiveness was developed in this study that can be used by all groups.

Competitiveness is not a clear theoretical economic notion but rather a business concept, however, the notion of sustainability clearly requires – and this is the contribution to agricultural economics – to situate competitiveness in an economic context to ensure a sustainable process of *the ability of a sector, industry or firm to compete successfully in order to achieve sustainable growth within the global environment while earning at least the opportunity cost of returns on resources employed. To compete means to try to gain or win something by defeating other competitors.*

A review of various methodologies for measuring competitiveness is also given in this study. Consequently, a framework for analysing competitiveness is developed. This framework can be used to explain competitive trends and develop comprehensive statements on competitiveness.

The principle methodologies used to explain the competitiveness status and factors impacting on the competitiveness of the agribusiness sector of South Africa have been that of Bela Balassa and Michael Porter. Both of these methodologies have been used by analysts worldwide, however, in South Africa, only limited studies using these methodologies can be found in agricultural economic research.

The study contributes to the debate regarding Balassa's Revealed Comparative Advantage model and Volrath's Relative Trade Advantage (RTA) method as measures of competitiveness. From the study it is clear that to measure how competitive a sector is, it is necessary to determine how successful the sector sold its products over time in the local and global environment relative to other competitors. The Relative Trade Advantage method allows for the measurement of competitiveness under real world conditions and is therefore the most suited for measuring competitiveness status.

There is some academic controversy regarding the model derived by Porter, and the principal elements of this debate were discussed in Chapter two. While the study finds some merit in the criticisms of Porter's explanatory model, it is believed that the Porter approach to the analysis of the sources of competitiveness is still the best available as it is comprehensive and accommodative while this approach is essentially qualitative and multi-faceted.

The study has also made a contribution to the debate concerning the Porter model, particularly in relation to the application of the Porter methodology to sector level and in trend analysis. The crucial role of supply chain management as a component of the competitiveness of the agribusiness sector is also particularly evident.

The study's overall conclusion is that Porter has provided a useful tool for the analysis of international competitiveness. In particular, it provides a checklist of items that should be taken into consideration, as well as a guide to the ways in which they may successfully interact to create competitive dynamics. The method also highlights the value of qualitative analysis at executive level applied through the business survey approach.

Another contribution made to competitiveness analysis is the incorporation of business confidence as a factor that directly impacts on competitive performance. A framework is developed to analyse the business confidence of the agribusiness sector in South Africa. The confidence of business leaders plays an important role in their next business decision. Most of the important role players in the agricultural sector of South Africa, such as the media, government, agricultural industry organisations and agribusiness managers have demonstrated a huge interest in the Agribusiness Confidence Index. The Agribusiness Confidence Index is accepted as an important barometer measuring the impact of the agricultural environment on the business confidence of agribusiness managers in South Africa.

I hope that the results of this study will be of interest to colleagues in universities and research institutes and to consultants practising in the agribusiness sector. I believe that

useful tools in the analysis of the competitiveness of sectors were illustrated in this study and that these tools can be used in the training of agricultural economists and young researchers in universities and business schools.

10.4 AN AGENDA FOR FURTHER RESEARCH

Two major forces influence the strategic environment in which farmers and agribusinesses in South Africa operate. Firstly, the socio-political forces which *inter alia* emphasise land reform and the integration of "historically disadvantaged groups" such as small scale agriculture into the main stream of decision-making, accumulation, governance and economic participation (Van Rooyen, Greyling & Esterhuizen 1999); and secondly, the drive towards economic globalization and the movement towards geo-political co-operation through trade blocs/agreements/common markets driven by multiple forces of technology, economies of size and specialisation (Tweeten, 1993; Zuurbier, 1999).

No inherent conflicting positions should necessarily exist between the first force and sustained competitiveness. From the policy directives as set out by the Broad-based Black Economic Empowerment legislation, the DTI Codes of Good Practice and the AgriBEE charter and scorecard, it is clear that BEE strategies should primarily focus on achieving long-term sustainable competitiveness while broadening the participative capacity of historically disadvantaged groups. In this context, BEE must be viewed as (a) one of the major strategies to be introduced to achieve sustained economic performance; and (b) a set of particular outcomes to be achieved through competitive performance.

The second force, the globalisation of markets and trade through specialisation and co-operation in regions, however, poses a major challenge, in terms of competitiveness, not only to the entire agro-food and fibre complex in South Africa, but also to the southern Africa region. In this context competitiveness is such an important concept and pre-request for the long term success of the industries operating in the agro-food and fibre

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complex. It is therefore imperative to analyse the competitive status and factor impacting on the competitiveness status of each agro-food and fibre industries.

Agriculture constitutes an important economic sector in the majority of countries in the southern African region. This is measured by the share that agriculture adds value to the GDP and also by agriculture's share in employment. Based on these facts alone, it is obvious that sustained agricultural performance plays a significant role in economic growth and in the improvement of food security and livelihoods in the region. The "New Economic Partnership for Africa's Development" (NEPAD), a strategic framework for the socio-economic development of Africa with the primary objective to eradicate poverty and promote economic growth, relies heavily on the agricultural sector. Member countries of the Southern Africa Development Community (SADC) share this vision of sustainable economic success and prosperity in Southern Africa through regional cooperation and economic integration (SADC, 2005).

What are the real competitive advantages and opportunities for agricultural business, trade and co-operation in Southern Africa? The current turmoil in Zimbabwe obscures the real opportunities for collaborative partnerships and co-operation between agribusiness firms in the region by exploiting competitive positions and to allow agribusiness partnerships to operate at a competitive cutting edge within the global economy.

For further research it is firstly recommended that the framework developed in this study be used to do a comprehensive industry analyses on the competitiveness of the most important food chains in South Africa. This can then act as bases for discussion, strategic planning, policy development and strategic positioning by the industries. The framework also allows for continues monitoring and evaluation of competitive performance.

Secondly, the framework can be used to investigate competitive positions of different countries and agro-food industries in the Southern Africa region. This information can be used to investigate opportunities for supply chain integration in Southern Africa, allowing

for agribusiness partnerships and co-operation to operate at a competitive cutting edge within the global economy. By focusing on competing at the cutting edge the Southern African region can provide the agricultural drive required by NEPAD to be successful.

Thirdly, it is recommended that research be done on how this competitiveness framework and results can serve as inputs in elaborating a business or corporate strategy for a particular company operating in Southern Africa.

10.5 CONCLUSION: FINDING WINNERS

The competitive spirit is a positive force in the economy. It also contribute to social progress, but, at the same time, it can also lead to frustration and anger with the realisation that not all the competitors are endowed with the same resources and bound by the same rules. The awareness that it is not an equal playing field, could give rise to anxiety and, in some cases, undemocratic or illegal behaviour.

The current line-up of leading agribusinesses is likely to change significantly over the next 5 to 10 years as further consolidation takes place into fewer, larger corporations. A common prediction is that the agribusiness sector will have two or three main players holding the greatest market share, followed at a distance by a host of much smaller companies. Some prominent industry experts go as far as to predict that as few as five to ten chains will dominate global food retailing within 10 years.

The agribusiness sector's future in South Africa will depend on the competitiveness of integrated supply chains. If they want to count, agribusinesses will have to seriously reconsider their positioning and strategic partnerships. More and more food companies are sourcing their raw materials and products globally. A fundamental challenge for domestic agribusinesses will be to seek out these business opportunities and develop sustainable win-win relationships in a business climate where transportation, logistics and information technology enables product movement and competition to be increasingly global.

Agribusiness in South Africa now faces the challenge of identifying winning teams within the links of chains. It can play a leading role in forming a "winning chain" as it serves the primary producer directly. All the participants in this chain must then pay special attention to the chain's critical success factors in order to develop and sustain a competitive advantage as successfully as possible.

New demands will, however, be made on the structure and management skills of agribusinesses. Lateral thinking, the ability to negotiate, networking, business intelligence and new incentive systems will be required. Consumer-orientation, as opposed to producer-orientation, will be the main challenge. New-generation co-operatives and companies will have to emerge with this as their overriding *raisond'être.*

 So, who will win? Those agribusinesses that understand and manage the challenges of operating in the global village. Those agribusinesses who seek competitive advantage, but at the same time recognise their social and environmental responsibilities regarding food safety, ethics, etc. and therefore integrity. Those agribusinesses operating within a business environment that is dynamic, stimulating and intensely competitive. Those agribusinesses whose productivity levels increases. Those agribusinesses that approach world best practices in areas such as production processes, technologies, marketing methods and management techniques. Those agribusinesses that have winning partnerships in the food chain. Those agribusinesses that shift the basis for competition from comparative advantage (low-cost labour or natural resources) to competitive advantages by creating unique products and processes guided by distinctive strategies. Those agribusinesses that operate within a quality national business environment.

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