BUSINESS SYSTEMS FOR INCREASED COMPETITIVENESS IN THE AGRIBUSINESS SECTOR OF SOUTH AFRICA

Van Rooyen, C.J. & Esterhuizen, D.

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Department of Agricultural Economics, Extension and Rural Development
University of Pretoria
Pretoria, 0002
South Africa

BUSINESS SYSTEMS FOR INCREASED COMPETITIVENESS IN THE AGRIBUSINESS SECTOR OF SOUTH AFRICA

C.J. van Rooyen[1] and D. Esterhuizen[2]
johan.lbk@agriinfo.co.za

1. FUNDAMENTAL CHANGES IN THE AGRIBUSINESS ENVIRONMENT

The new economy: It is clear that agriculture and agribusiness world-wide will and is already experiencing far reaching changes. Globalisation, technology and rapidly changing trends in consumer behaviour in particular, impacts heavily on the way agribusinesses conduct their business. The changes are also very dynamic, changing the nature of farming and business. One would for instance see that farmers would spend less time in the field and more time in service activities such as information gathering and analysis, contract management, marketing, finance and asset acquisition. This is the "new" economy in which agribusiness operate. The most important changes are shown in Table 1 and Table 2.

[1] Professor in the ABSA Chair in Agribusiness Management, University of Pretoria / Executive Director, Agricultural Business Chamber of South Africa
[2] Agricultural Research Council/Agricultural Business Chamber

Table 1: The changing business environment

• **The transition from an industrial/ producer driven business to an information community.** The trail-blazing advances in communication and computer technology and the use of the internet are proof of this.
• **The change from a national economy to a world economy:** The opening up of trade and the reduction of import tariffs in terms of World Trade Organisation (WTO) agreements have exposed South Africa producers to competition. The Trade, Development and Co-operation Agreement (TDCA) between European Union (EU) and South Africa (SA) and also the proposed establishment of a free trade zone in SADC will also have a profound impact on the South African agricultural sector.
• **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 and supply chain agreements and specialisation are facilitated. Networking empowers individuals and nurtures innovation and unity.
• **The change from regulation and institutional help to self-help**: The deregulation of the agricultural sector has led to an increase in entrepreneurs who add value, as well as more differentiation and exports. The scaling down of domestic support and exports subsidies according to WTO regulations will generate an increase in business opportunities and trade between countries.
• **The change 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)

Source: Standard Bank, 1999

Table 2: Elements of the changing agribusiness concept

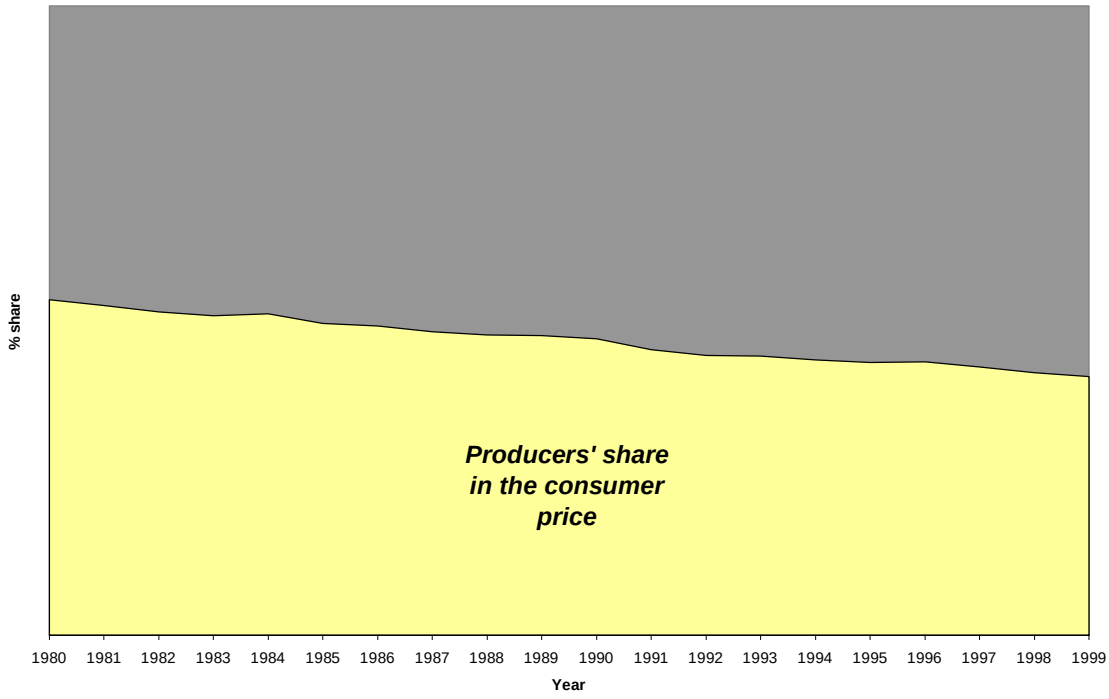
Old concept	New concept
• Cultivate commodities	• Specific characteristics/differentiated primary products
• Accumulation of products	• Modern/niche products/differentiated accumulation
• Hard assets are the key to strategic competitiveness	• Soft assets are the key to strategic competitiveness
• Geographically 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 the distribution thereof
• USA is the world's primary supplier	• Many suppliers world-wide

Source: Boehlje, 1996

Operating an uneven "playing fields": The new global market proves to be quite "unequal". 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 is well known and documented. The OECD countries is spending more today in subsidizing agriculture than it was in the 1986-88 period and in

1994 – the year that the Uruguay Round Agreement entered into force. For every $1 received by farmers in South Africa, only 4 cents are directly or indirectly subsidised by the government. The same will be true for Namibia. For Canada, USA and EU the government subsidised respectively 16, 22 and 45 cents for every 1$ received by the farmers. As markets are increasingly contested this situation must be considered as unfair, with advantages to the stronger and rich countries of the world. The Millennium Round of the World Trade Organization started in Seattle in 1999 holds out hope of a more balanced dispensation. South Africa and other SADC economies, however, are small players and will have to learn to "cope with the slope" for the time being.

Figure 1: Producers' share in the consumer price



The consumer "will rule": Consumers will require more attention and added value to their food preferences i.e. pre-prepared meals, quality control etc. An interesting feature of the new economy is that the producer's share in the consumer dollar for food is decreasing world-wide (Figure 1). There are many reasons for this higher marketing margin, for example increased cost of transport, increased cost of capital, advertisement, packaging, meal preparation, etc. This trend is expected to continue inter alia due to the importance consumers attach to aspects such as health, environmental and

social considerations within value adding processes and the tracebillity there off along the value adding chain. The implications of this trend are that the value adding chain will become a major agribusiness business system in the future food and fibre sector.

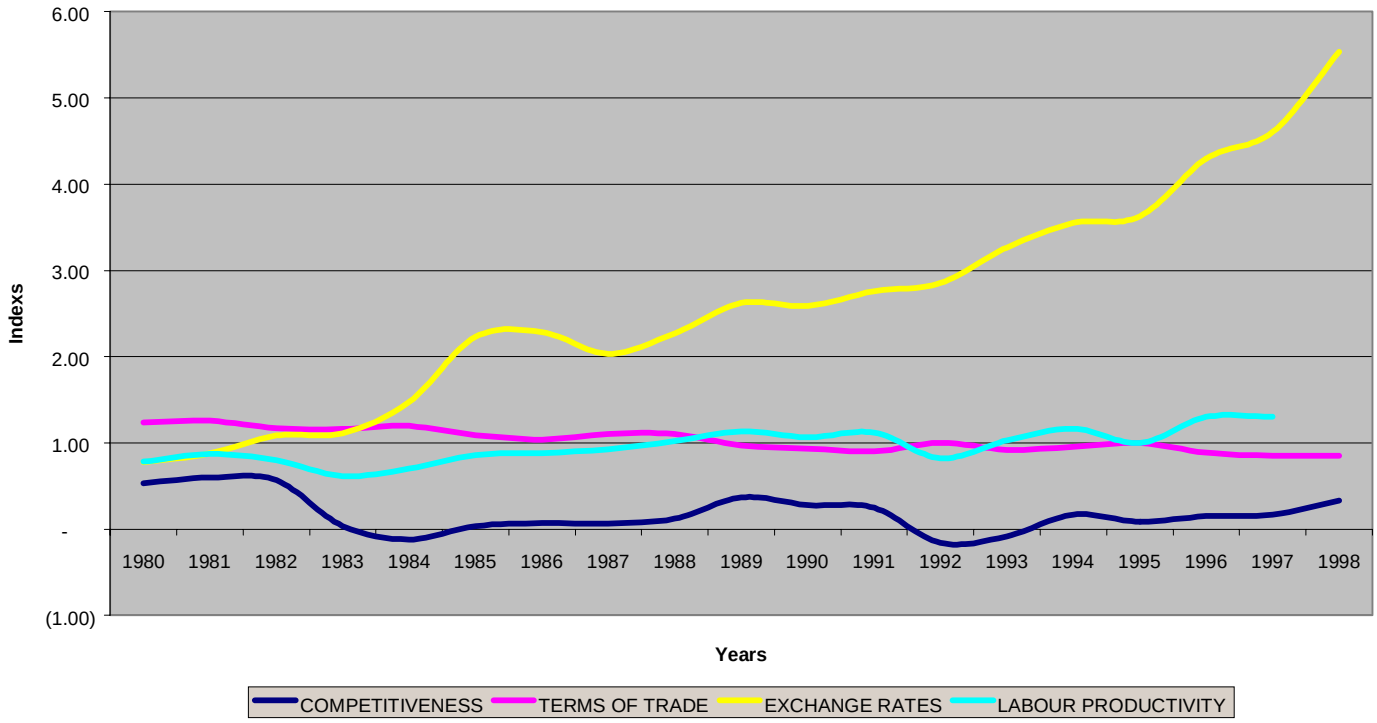
In conclusion, changes in the forces that affect the global market for agricultural products has radically redefined the concept of doing business in agriculture. Farm producers and agribusinesses now have to position themselves as business driven competitors in the value chain, in a less controlled, more volatile, “free market”, sometimes even “unfair” i.e. the New Economy global agribusiness environment.

2. HOW COMPETITIVE IS THE AGRO-FOOD INDUSTRY IN SOUTH AFRICA?

In view of all these structural changes in the fundamentals of the agro-food market, competitiveness is viewed as the most important component for success and survival of agribusiness sectors. In this environment competitiveness must be (re) defined as the ability of an industry (or firm or country) to trade and exchange products on a sustainable basis in the global market (Porter, 1990; Balassa, 1989). Imports and exports must therefore be included in the determination of competitiveness.

How competitive are agribusinesses? Revealed Comparative Advantage (RCA) indexes were calculated for agribusinesses using FAO trade statistics (Balassa, 1989). A supply chain view, including added value processes, was taken of 16 agro-food chains in Southern Africa. The major conclusions of this analysis were:

Figure 2: Competitveness, Terms of Trade, Exchange rate (R/$) and Labour productivity in South Africa's agro food industry



(i) INDUSTRY TRENDS

- **Marginal competitiveness**: From Figure 2 and Table 3 it is evident that the South African food and agricultural industry is generally marginal as far as international competitiveness is rated. Most RTA values are situated around zero (wheat, sugar, soya beans, potatoes, tomatoes, beef processing, milk, pig meat). However, from 1992 there were a definite positive trend in the industry's competitiveness, despite an ever more decreasing terms of trade (Figure 2). The following can be seen as some of the factors which contributed to the positive trend in competitiveness for this period namely: a) the deregulation of the South African agriculture in 1992, b) the positive trend in labor productivity for agriculture from 1992 and c) the sharp decrease in the value of the Rand against the US$ since 1992 onwards. This implies that minor adjustments related to increased productivity can contribute to changing negative situations into positive status. It will however be important to identify the particular set of supply chain interactions, which needs to be upgraded.

- **Decreasing competitiveness in the value chains**: The maize, pineapple, wool, and apple chains are competitive while the meat, milk, sunflower, and soybean chains are non-competitive. Except for the wheat, maize, apple, and pineapple chains the competitiveness in the other chains decrease from primary to processed products (see also Table 3). This implies that benificiation or "value adding" opportunities in South African agribusiness are restricted. Farm production, on the other hand, is relative or marginal competitive. One possible explanation for this could be the high rates of returns recorded for farm level applications of technology for most primary commodities (Thirtle *et al*, 1998). 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 labor, high input cost, low quality or maybe government trade policy, etc.?

- **Variations over time in competitiveness (1980-1998):** Except for flour of maize, groundnuts in shell, grapes and oil of sunflower there are no great variance in the competitiveness over the years from 1980 to 1998. Flour of maize, sugar (centrifugal, raw), sugar refined, groundnuts in shell, oranges, apples, pineapples canned and the whole grape chain show positive trends in competitiveness from 1980 onwards. Cake of soya beans, oil and cake of sunflower and the whole sheep chain shows a negative trend from 1980. Wheat, flour of maize, sugar (centrifugal, raw), sugar refined, soya beans, apples, grapes pineapples canned, pineapples juice, beef and veal, fresh cow milk and the whole orange chain shows positive trends in competitiveness the last four years, while flour of wheat, wine, cake of soya beans and the whole sheep chain negative trends revealed.

Table 3: Competitive advantage of selected food chains in South Africa based on the Relative Revealed Trade Advantage (RTA) index

Chain	Product	RTA 1998	RTA 1997	RTA 1996	RTA 1995	RTA 1990	RTA 1985	RTA 1980
Wheat chain	Wheat	-0.85	-0.77	-1.73	-1.56	-0.88	-0.10	0.11
	Flour of wheat	1.26	1.60	2.52	2.47	1.34	0.52	-0.03
	Macaroni						-0.26	
	Pastry	-0.49	-0.39	-0.63	-0.44	-0.36	-0.48	-0.06
	Bread	0.15	0.06	0.03	0.18	0.14	-1.32	
	Breakfast cereals	-0.13	-0.11	-0.16	-0.12	-0.18	-0.02	-0.02
		-0.28	-0.20	-0.43	-0.09	-0.07		-0.22
								0.03
Maize chain	**Maize**	2.44	3.72	4.47	1.04	3.57	-0.29	3.64
	Flour of Maize	28.55	10.10	17.96	12.73	0.14	-19.12	-4.48
Potatoes chain	Potatoes	0.85	0.86	0.73	0.34	0.17	0.17	0.44
	Potatoes, frozen	0.07	0.05	0.13	0.08	0.01	N/A	N/A
Sugar chain	**Sugar (Centrifugal, Raw)**	8.88	3.00	2.17	1.76	3.64	1.78	4.16
		2.08	1.86	1.97	0.83	1.95	0.85	0.01
	Sugar refined	0.32	0.39	0.36	0.27	0.25	-0.16	0.07
	Sugar confectionery					0.03	N/A	N/A
	Maple sugar and syrups	-0.02	-0.03	-0.06	-0.04			
Soybeans chain	Soybeans	0.17	-0.11	-0.23	-0.88	-0.01	0.00	0.00
	Oil of Soya beans	-0.85	-0.43	-0.55	-0.37	-0.16	-0.78	-0.25
	Cake of Soya beans	-1.62	-1.53	-1.54	-0.23	-0.51	-0.48	N/A
	Soya sauce	-0.30	-0.27	-0.20	-0.23	-0.42	N/A	N/A
Groundnuts chain	**Groundnuts in shell**	9.69	8.69	8.97	10.52	-0.10	0.08	-0.09
		1.51	5.12	2.27		2.80	0.98	3.63
	Groundnuts shelled	4.71	4.17	4.05	-1.54	4.89	4.29	2.98
	Oil of groundnuts	0.01	0.05	-0.06	6.61	0.02	N/A	N/A
	Prepared groundnuts				-0.05			
Sunflower chain	Sunflower seed	-0.16	-0.36	1.50	0.04	-0.03	0.03	-0.92
	Oil of sunflower	-6.91	-6.62	-4.42	-7.72	-3.96	-10.84	0.74
	Cake of sunflower	-1.91	-5.97	-4.65	-4.19	-0.11	-0.33	N/A
Tomatoes chain	Tomatoes	0.13	0.07	0.10	0.01	0.04	0.03	0.02
	Tomato juice	0.36	-	-	0.00	-	N/A	N/A

Chain	Product	RTA 1998	RTA 1997	RTA 1996	RTA 1995	RTA 1990	RTA 1985	RTA 1980
	Tomato paste Peeled Tomatoes	-0.07 -0.57	0.08 -0.06 -0.78	0.07 -0.14 -0.58	-0.78 -0.84	0.01 0.02 -0.03	N/A N/A	N/A N/A
Oranges chain	**Oranges** **Orange juice**	16.53 1.01	13.67 0.39	10.45 0.14	14.37 0.33	8.32 0.84	10.08 0.23	6.21 0.63
Apples chain	**Apples** **Apple juice**	10.08 6.59	6.62 11.35	5.24 9.22	7.13 7.89	6.03 8.68	5.62 12.89	4.85 N/A
Grapes chain	**Grapes** Grape juice **Wine**	14.07 3.67 2.40	10.29 -1.29 2.49	8.35 -1.63 2.73	11.31 3.41 3.23	5.66 1.79 0.30	3.84 N/A 0.05	6.21 N/A 0.15
Pineapple chain	**Pineapples** **Pineapples, canned** **Pineapple juice**	1.41 7.41 7.20	0.90 7.18 7.25	1.31 4.70 4.71	1.64 5.59 5.73	0.98 5.29 9.16	0.47 3.00 8.49	1.03 6.65 8.50
Cattle meat chain	Cattle Beef and veal	-1.46 0.23	-3.76 -0.13	-4.03 -0.26	-2.65 -0.58	-2.01 -1.33	-2.19 -0.01	-3.17 0.45
Milk chain	Cow milk (whole, fresh) Butter of cow milk Cheese	0.43 0.22 -0.05	0.27 -0.70 -0.24	-0.05 -0.38 -0.16	-0.07 -0.23 -0.14	0.04 0.03 -0.06	0.01 0.04 -0.13	-0.10 0.03 -0.06
Sheep meat chain	Sheep Mutton and lamb	-8.60 -1.71	-5.17 -1.73	-5.49 -1.60	-6.66 -0.81	-7.28 -0.05	-2.77 0.07	-1.33 0.03
Wool chain	Skin with wool Wool, greasy Wool, scoured	4.11 6.09 2.66	6.92 2.76 2.10	5.83 4.05 2.00	4.51 3.70 1.73	11.28 8.23 1.61	11.21 6.04 2.29	4.78 5.56 1.60
Pig meat chain	Pigs Pig meat Bacon-ham of pigs	0.01 -0.39 0.00	0.02 -0.42 0.00	-0.01 -0.67 -0.04	-0.04 -0.89 -0.02	0.00 -0.03 -0.05	-0.02 0.06 -0.07	0.00 0.06 -0.06

Source: Own calculation based on data from FAOSTAT 1999

(ii) FARMING REQUISITES

Most studies on competitiveness often only consider the output ("from the farm to the table") or only the input sides of the agribusiness system and thereby ignoring the possible combined impact the input and output sector could have on the competitiveness of the agro-food industry.

Using the same formula (Balassa-method) described earlier the competitiveness status of the South African primary farm requisites input manufactures where calculated (Table 4).

- ***Total farming requisites***

From Table 4 and figure 4, it is clear that South African manufactures of farming requisites as a whole are relative marginally uncompetitive in the international arena with a RTA value of –0.24 in 1998 and a RTA value of –0.16 in 1997. However, total farm requisites has a positive trend in competitiveness from 1980 to 1998 and in the short run from 1995 to 1998.

- ***Total agricultural machinery***

Total agricultural machinery includes tractors, harvesters, and milking machines. South Africa's manufactures of these products are not very competitive internationally. Agricultural machinery has a constant trend in competitiveness from 1980 to 1998 but has a definite positive trend in competitiveness the last four years.

- ***Tractors***

The manufacturing of tractors in South Africa, as one of the most important agricultural machinery used by farmers, are not very competitive in the international arena. However, there is a definite positive trend in competitiveness the last four years. From 1980 to 1998, the manufacturing of tractors has a constant trend in competitiveness.

Table 4: The competitiveness status of the South African primary farm requisites input manufactures

	RTA 1998	RTA 1997	Trends 1980 – 98	Trends 1995 - 98
Total farming requisites	-0.24	-0.16	**+**	**+**
Total agricultural machinery	-1.56	-1.44	**=**	**+**
Tractors	-1.90	-1.90	**=**	**+**
Fertilizer	1.27	1.31	**+**	**=**
Pesticides	0.40	0.34	**+**	**=**

Source: Own calculation based on data from FAOSTAT 1999.

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

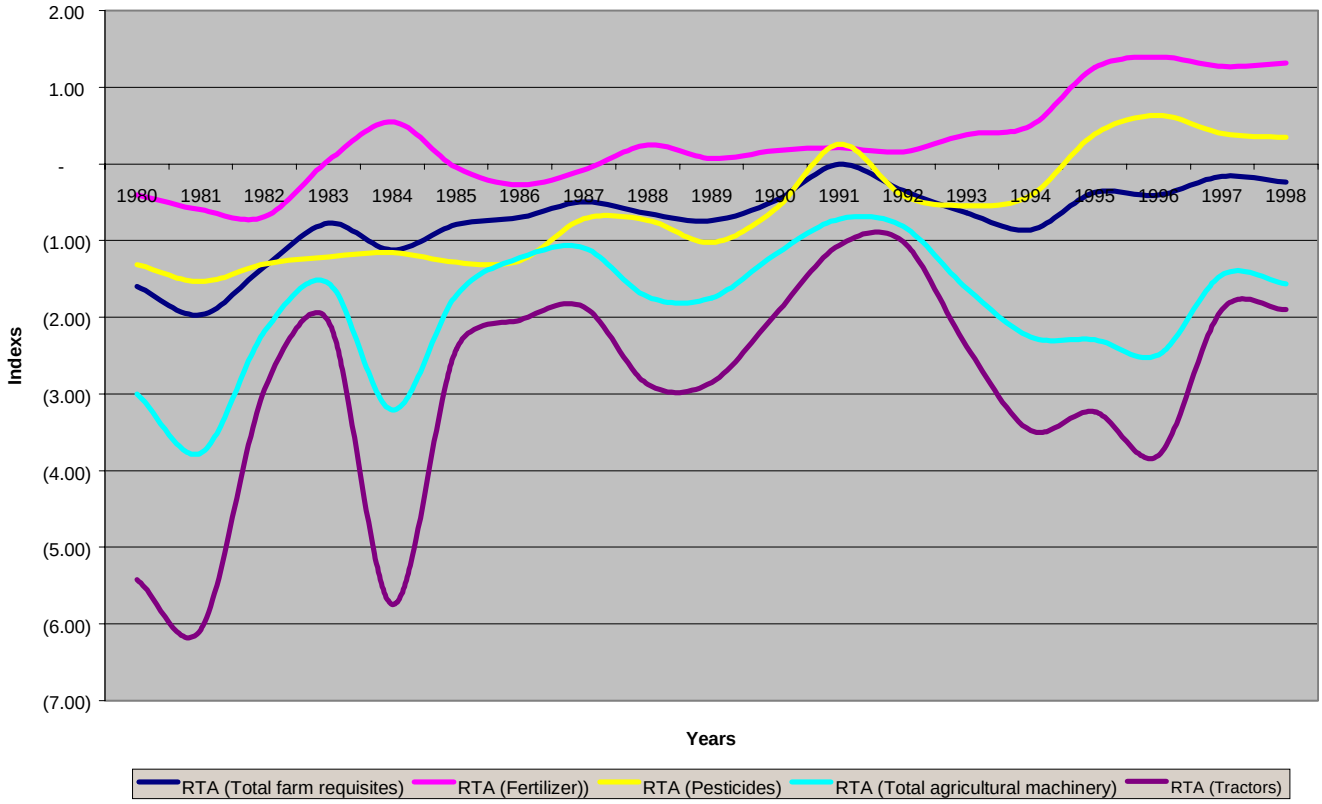
Fertilizer

The South African manufactures of fertilizer are very competitive in the international arena with a RTA value in 1998 of 1.27. The fertilizer manufactures have a positive trend in competitiveness in the long run but constant trends in competitiveness the last four years.

- ***Pesticides***

The pesticides manufactures in South Africa are relative marginally competitive internationally. The pesticides manufactures have a positive trend in competitiveness in the long run but constant trends in competitiveness the last four years.

Figure 4: The competitiveness of the South African manufactures of farming requisites

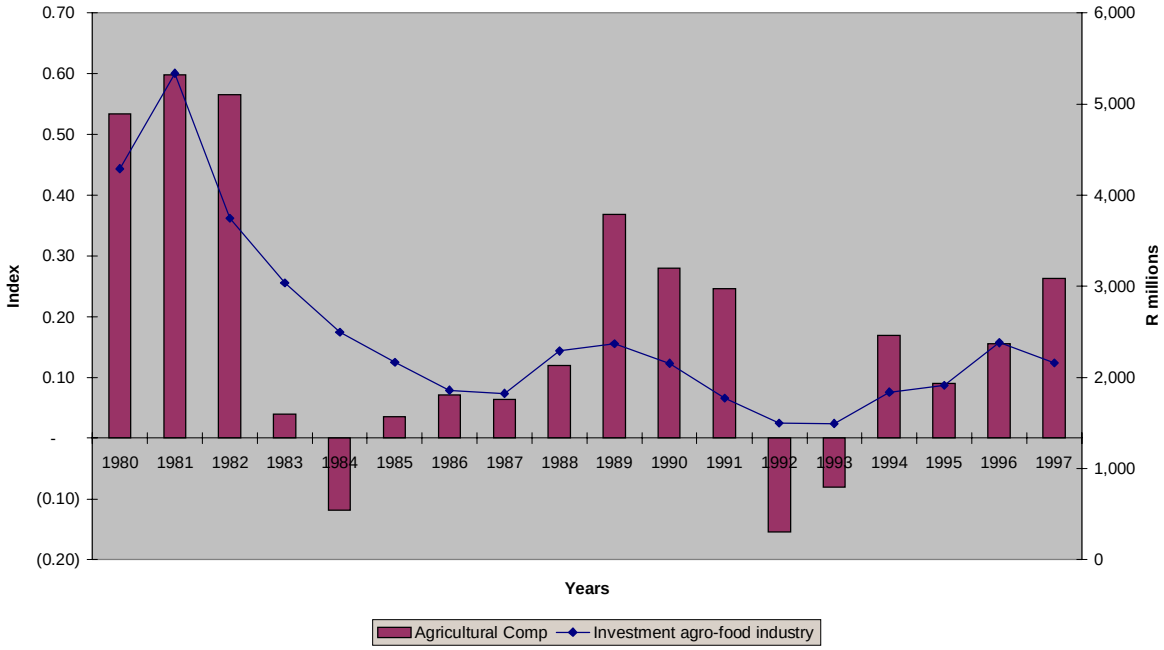


3. FACTORS RELATED TO COMPETITIVENESS

- **Investment correlation:** An industry, which is not competitive, will not attract investment and vice versa. In Figure 6, this pattern is illustrated for the South African case. A correlation analysis indicted a correlation coefficient of 78% which confirm this phenomena. Investment levels closely follow the aggregate competitiveness index of the agro-food industry. As in the case of competitiveness, levels of investments have dramatically declined since the early 1980s. However, since 1993/94 increases in investment and competitiveness are observed although trends for investment are again declined since 1996/97. This might indicate the immediate impact of the current political uncertainty in the region and also crime. Fundamentally, however, the "economics" are moving in the right direction and a more competitive agriculture sector should draw more

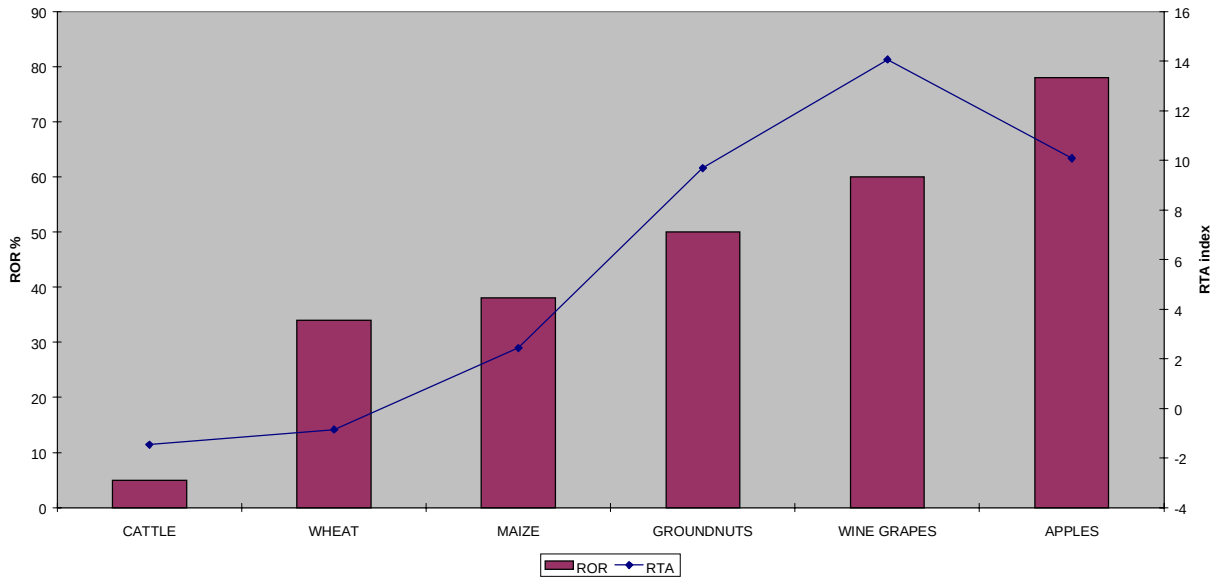
investments in the food and fibre complex.

Figure 2: The correlation between competitiveness and investment in agro-food industry



- **The relationship between the competitive indexes and R&D and technology at industry level:** An analysis of agribusiness performance indicates a strong expectation that research and technology development plays an important role in improving the competitiveness status. In Figure 7 the high correlation (R^2 = 0.69) between competitiveness status and ROR on research and technology is confirmed for cattle, wheat, maize, groundnuts, wine grapes and apples in South Africa. Where ROR's are high, a high competitive index rating is observed as in the case of groudnuts, apples, wine grapes. Investment in R&D will strengthen clearly this relationship.

Figure 7: The correlation between ROR and competitiveness in agricultural industry



When and why is an industry internationally competitive? How sustainable is the position? According to Porter (1990, 1998) the answer lies in the performance within six broad criteria or attributes that shape the environment in which firms can compete that promote the creation of competitive advantage. These are:

- **Factor conditions;** the quality of factors of production, natural resources, level of production costs such as the price of labor, diesel, pesticides, machinery etc, and infrastructure, necessary to compete in a given industry;

- **Demand conditions;** the nature of domestic and international demand for the industry's product and service and the ability to record this demand. Few local studies on this aspect exist, but this will have to be a major future focus.

- **Related and supporting industries;** the presence or absence of supplier industries and related industries that is internationally competitive. The high returns to R&D expenditures for farm level production in maize,

groundnuts, deciduous fruits, and wool indicates the value of a strongly focussed and successful agricultural research system.

- **Firm strategy, structure, and rivalry;** the conditions in the nation governing how companies are created, organized, and managed, and the nature of domestic rivalry. The current social transformation and changes in the input supply and agribusiness's structure (from co-operatives to companies) will impact on this issue.

- **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;

- **The role of chance**; chance events are occurrences that have little to do with circumstances in a nation and are often largely outside the power of firms (and often the national government) to influence. 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.

Porter's method not only evaluates the competitiveness of the farmer, but that of all the participants in the supply chain. This method allows to identify and analyze the structure of a sector and to point out the strengths and weaknesses. Critical success factors can be identify to which participants in a chain have to pay special attention in order to develop and sustain competitive advantage as successfully as possible in the years to come.

The Porter methodology was applied to an industry wide analyses of more than 400 agribusinesses in South Africa (Van Rooyen and Esterhuizen, 2000). No industry or chain differentiation was however conducted. A more refined enquiry will be required for such an analysis.

In Table 6 the status of the various Porter determinants are shown and in Table 7 the fifteen most important factors influencing the competitive success of the agro-food industry are indicated. The respondents indicated that the quality of their products (i.e. value for money) is currently the most important driver influencing the competitive success of their companies; 84.38% of the respondents indicated that the labour policy is a very important factor; 83.08% of respondents indicated that crime is a very important factor influencing the agro-food industries competitiveness.

Table 6: Determinants of the competitiveness of the South African agro-food industry

Factors	Rates
Factor conditions:	**(1 – 2)**
Cost of production	1
Labour	1 – 2
Natural resources	2
Infrastructure	1
Location	1 – 2
Capital	
- Cost	1
- Availability	1 – 2
Knowledge	
- Cost	1 – 2
- Quality	2
- Availability	2
Technology	
- Cost	1
- Quality	2
- Availability	1 – 2
Demand conditions:	**(2)**
Market size	1
Market information	1 – 2
Quality of products	3
Market growth	1 - 2
Related and supporting industries:	**(2 - 3)**
Financial institutions	2 - 3
Research institutions	2 - 3
Transport companies	2 - 3
Suppliers of packaging material	2 - 3
Electricity supplies	3
Agricultural suppliers	2
Related industries	2
Firm strategy, structure and rivalry:	**(2 - 3)**
Adaptability	3
Culture	2 - 3
Structure	2 - 3
Flexibility	2 - 3
Pricing strategy	2 - 3
Managerial capabilities	3
Market power of buyers	1 - 2
Market power of suppliers	1 - 2
Threat of substitutes	1
Threat of new entrants	1 - 2
Government:	**(1)**
Indirect support	1
Trade policy	1 - 2
Land reform policy	1
Labour policy	1
Fiscal policy	2
Change:	**(1)**
Economic stability	1 - 2
Aids	1
Political stability	2
Price stability	1
Crime	1
1 = Constraint **2 = Neutral** **3 = Enhancement** **( ) = Average**	

Respectively 76.19% and 78.13% of the respondents indicated managerial capabilities and the market power of buyers are very important factors to the competitive success of the agro-food industry.

Other factors that was indicated by the respondents to play a very important role for competitive success in the agro-food industry are the cost and availability of capital, the cost of skilled labour, the cost of production, economic stability, the quality of physical infrastructure and the pricing strategy of agribusinesses. The competitiveness and sustainability of agricultural suppliers are also very important to the respondents.

Table 7: Currently the fifteen most important factors influencing the competitive success of the agro-food industry

Factors	**Average**
1) Quality of products	2.83
2) Labour policy	2.81
3) Crime	2.78
4) Managerial capabilities	2.75
5) Market power of buyers	**2.73**
6) Local market growth	2.72
7) Cost of capital	2.70
8) Local economic stability	2.69
9) Cost of production	2.65
10) Availability of capital	**2.65**
11) The competitiveness of agricultural suppliers	2.65
12) Quality of physical infrastructure	2.62
13) Sustainability of agricultural suppliers	**2.61**
14) Pricing strategy of companies	2.60
15) The cost of skilled labour	2.59

4. THE NEED FOR AGRIBUSINESS CHAIN REACTIONS

Radical changes will be required for agribusiness to be more competitive and to survive. The above factors need to be addressed efficiently. A paradigm shift in the way in which agribusiness is viewed will clearly be required. Some of these are shown in Tables 1 and 2.

Many agribusinesses in our region are still trapped in the paradigm of the “old concept” where business is based on impersonal, opportunistic even antagonistic transactions. (Table 2) Thought they are currently resistant to change they will increasingly come under pressure to adopt “new concepts” especially a stronger consumer focus and a supply-chain-orientated way of doing business. These new concepts will also translate in to new agribusiness methods and structures.

In a recent international survey (Zuurbier, 1999) it is indicated that vertical integrated supply chains and contractual networks and trust relationships is expected to determine the structure of the food and agribusiness industry in the next decade (Table 8). The most important driving forces is also expected to be technology, keeping tract of changing consumer behaviour and the influence of multinational companies (Table 9).

Table 8: The structure of the Agro-food industry in the next decade

Item	Netherlands	Europe	World	Total
Larger scope of companies	0,73	0,75	0,70	0,73
Vertical integrated supply	0,85	0,91	0,90	0,88
chains	0,23	0,19	0,20	0,21
Sport markets	0,92	0,88	0,95	0,91
Contractual networks	0,58	0,72	0,70	0,67
Virtual networks of	0,77	0,56	0,60	0,64
companies	0,15	0,44	0,45	0,35
More fragmented markets	0,73	0,84	0,80	0,79
Increase in small companies				
Increase in global companies				

Source: Zuurbier, 1999

Notes: Percentage agreed: 0 = none, 1 = all

Table 9: Major factors driving the agro-food industry

Item	Netherlands	Europe	World	Total
Multinational food companies	3,7	3,8	3,7	3,7
Supply chains	3,0	3,2	3,7	3,3
Regions	2,6	2,5	2,7	2,6
Local supply networks	2,9	3,3	3,2	3,1
Technology	3,9	4,0	4,1	4,0
Collusion/merger	3,8	3,3	3,5	3,5
Consumer behaviour	4,0	3,8	4,4	4,0
Increased competencies	3,4	3,7	3,6	3,6
Electronic markets	4.1	3.9	4.0	3.9
Less trust/ more opportunism	1.4	1.4	1.0	1.3

Source: Zuurbier, 1999

Notes: Percentage agreed: 0 = none, 5 = all

The “supply chain” interaction is viewed as one of the most important business phenomenon in the food and agricultural industry 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). Value will thus be added or lost if the chain is not functioning in an effective and efficient manner.

The importance of consumer demand (mass individualisation), including aspects such as tracebility regarding environmental, health and social aspects of production at different stages of the chain, is expected to dominate food economies in world markets and unless such demands are transmitted rapidly and accurately to primary producers, agriculture will find it difficult to compete effectively. In addition, if only certain elements in the supply chain are performed efficiently, the full potential for value adding will not be realised.

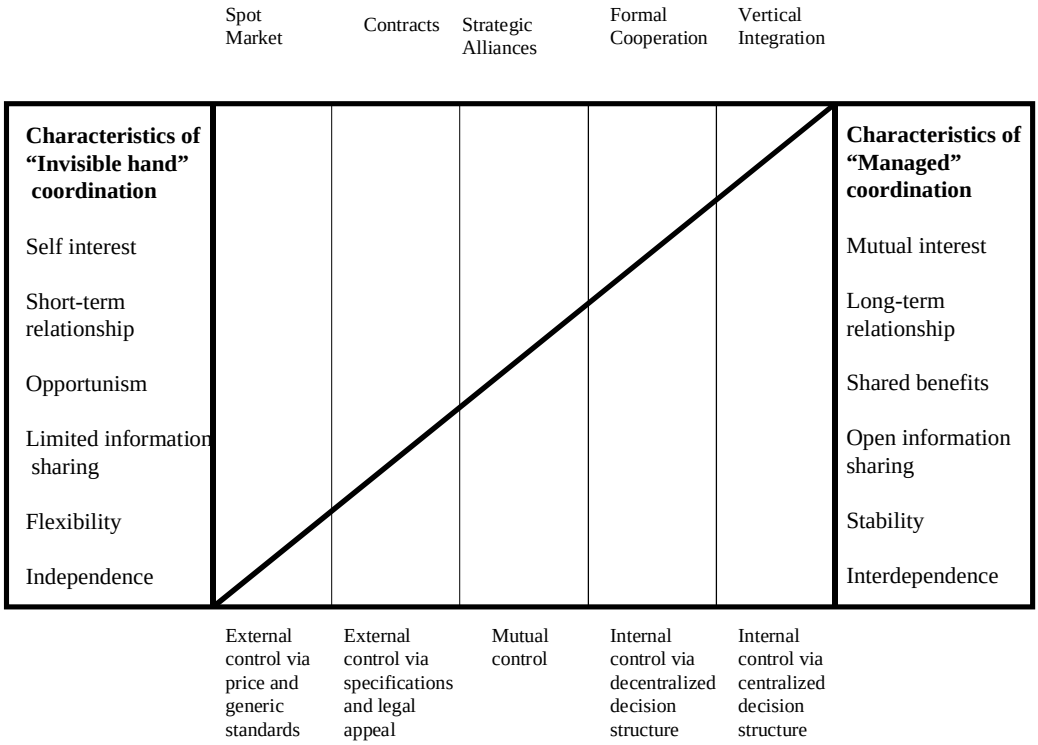
Interaction within a chain is thus an essential element. Value is added or lost where a link does not function effectively. Where only certain links perform well, the full potential to add value will not be realized. Thus, the whole framework has to focus on efficiency and competitiveness.

The integrated nature of the supply chain means a need will arise to focus on logistics, market research, technology, and training across all production processes. Price determination on spot markets such as auctions will be of lesser importance. Most competition will take place among chains – and links with rivals could boost profitability. The chains also do make it possible to benefit from economies of scale.

Thus, agribusiness competitiveness in the new millennium will rely not only on farming (primary agribusiness) but also on suppliers and service providers, producers and processors, co-operatives and financial institutions. All these is likely to be organised in competing chains, while interactions with in a particular chain will depend on long-term relationships and contracts.

Supply Chain Management (SCM) is an integrated management approach for planning, controlling and optimizing the flow of goods and information through a distribution channel between 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, referred to as a supply chain or network. Supply chain members can include customers, suppliers, farmers, carriers, vendors, distribution centers, and other third parties.

Creating a chain reaction: 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 to create value jointly. They have to recognize that trust in relationships will take root only if both parties are confident to share in the rewards.

Figure 7: Various models of value chain interaction

Various models of "supply chain" interaction are possible depending on conditions in an industry. In Figure 7 this range is indicated. Possibilities for collaboration will depend on the industry. For grains and livestock transactions are still dominated by spot markets and contracts. Flowers, vegetables and fruit are generally operating in more formal chain relationships. An increased share in the value adding however will clearly require a movement towards formal co-operation and vertical integration arrangements.

WHAT ABOUT THE INFORMAL SECTOR?

The informal sector is predominantly "informal" due to regulations and procedures that render high transactions costs to "formalise" the activities in this sector. Bureaucracy, regulations, etc are high cost factors for small firms, especially when little benefit is perceived to accrue from such formalisation. This sector also provides livelihood opportunities to many women in agribusiness. The informal sector however should be appreciated for its uniqueness in terms of some of the principles of "supply chain" economics described in the rest of this paper. A few examples will support this viewpoint. In a study by Mavhandu, Van Rooyen and Van Schalkwyk (1998) it was determined that street hawkers in the Kagiso and Orange Farm townships were very focussed on the needs and preferences of their customers. Fruit and tomatoes were packed in equal sizes and stable pricing policies were followed. The major objectives of these informal vendors were to secure a stable client base. All these vendors also indicated a preference to obtain fresh fruit and vegetables from a consistent supplier that could understand their peculiar circumstances. They supported the idea of less opportunistic/more trust relationships in their own, peculiar "super chains".

A study of informal street sellers of cutflowers in Pretoria (Anseeuw, D'Haese, Van Rooyen & D'Haese, 2000) indicated a high consumer focus by these flower sellers. Transactions had to be conducted in short periods with emphasis on uncomplicated prices, styles (bunches, single stems, etc) and

friendliness. The sourcing of flowers was also regulated in a “vertical integrated supply chain mode” with long term relationships.

Both studies also showed that substantial incomes could be generated by these informal traders. However, due to their “informal status”, limited support systems such as financial services and business training, infrastructure, market information, transport, etc could be rendered through government funded small business development programmes. It will remain important to facilitate “chain reactions” to integrate this important sector more fully into the “business of the day” especially to quality for the various support systems available from authorities. Women entrepreneurs were also particularly active.

5. LINKAGES BETWEEN DEVELOPING AGRICULTURE AND AGRIBUSINESS

A strategy that follow from the above is that “value added” linkages between developing agricultural initiatives and agribusiness should be considered. Such arrangements will render the required support to industrius emerging agricultural groups (often again women) to produce consistent quality and quantity as required by contractual arrangements with the supply chain. Models to promote this strategy could include outgrower schemes, equity share projects, etc. Facilitation and design support to structure such linkages was however listed as a high “transactions cost” by most agribusinesses in South Africa.

The Co-operative Development Initiative (CDI) of the Agricultural Business Chamber and the DGRV (Deutscher Genossenschafts- und raifeisenverband) was therefore established to facilitate such linkages. Efforts are promising some successful chain reactions. NewFarmers Development Company also recorded some important success in linking agricultural workers into the value chain. One example is the Cape olive project outside Paarl.

6. CONCLUSIONS

The agribusiness industry will continuously be challenged to perform competitively. International trade agreement, labour regulations, crime, the quality of physical infrastructure and labour costs are externally manipulated factors over which all agribusiness has relative little control. These factors should be attended to by industry advocacy functions.

Product quality, cost of production and managerial capacity and labour skills and business strategy on the other hand are factors over which firms have control. An important firm level strategy will thus focus on the following operational aspects over which a firm has some control:

(i) **Value chain based business structure and management systems:** From the South African evidence it is clear that firms are currently concerned about the relative market power of buyers and suppliers, the competitiveness of suppliers and the potential of a price: cost squeeze. An important strategy to deal with this matter will be the introduction of "supply chain" structures so that the relationship between buyers and sellers, can be managed within the value added chain, in a more productive and trustful manner. Efforts are in progress in the meat chain, sitrus chain, fresh produce, mohair, etc.

(ii) **Innovative pricing and trading strategies:** With value chain interactions expected to dominate future agribusiness relationships in the new economy, pricing strategies will change radically in nature. Long-term contractual pricing will replace "spot-market", auction pricing and day-to-day bargaining.

(iii) **Refocusing on consumer needs:** The satisfaction of consumer demands will dictate the development and investment paths of successful agbusinesses in future. In the agribusiness industry, especially for food and high quality fiber products, health, social equals

and environmental impacts require clear statements on the tracebility of products. A “micro-chip” innovation will clearly support such required responsiveness. A responsive system will also allow producers and R&D systems to respond rapidly to required changes and thereby increasing levels of ROR and competitiveness.

(iv) **Production and technology, development and transfer within the value chain:** The reduction in the relevance of product price per se will render rationalization, cost cutting, labour management and cost effectiveness as most important factors for successful agribusinesses. The high cost of acquire technology is particular concerning in South Africa. Close collaboration between the players in the supply chain and R&D institutions will be required to increase and sustain investment in R&D. Joint ventures by the industry with the R&D and technology systems need to be prioritized to allow firms to maintain “cutting edge” positions in a competitive world.

(v) **Focussed informal sector support programmes**: This sector is serving a peculiar niche market. Bureaucracy often constrains this sector to share in the benefits of support programmes. It remains important for this sector to be supported and more attention and focus should be directed in order to facilitate “chain reactions” in this sector.

(vi) **An integrated “agro-value chain” advocacy (or lobby):** The management of external factors enhancing competitiveness such as quality of infrastructure and technology, economic policy, availability of capital, more “even” economic playing fields in the global environment, aids, etc will continue to be important. For this purpose, the agro-food complex should push for an “Agribusiness Policy”. Currently agribusiness falls between agriculture, trade, and industry policy. No clear agribusiness policy focus exists. A more focussed approach to policy development and implementation will provide a more favorable environment for firms in the agro-food complex to operate more competitively.

For this purpose, a representative “voice” for agribusiness will become increasingly necessary in order to mobilise collective action. Such a “pipeline” of “supply chain” advocacy voice or lobby will need to consolidate different, often competing components of the supply chain in the industry. Common ground could be found in factors which will enhance the ability of individual firms in the chain to be as competitive as possible.

REFERENCES

ANSEEUW, W., D”HAESE, L. , VAN ROOYEN, C.J. & D’HAESE, M. (2000) A socio economic description of the informal cut flower sector: The Pretoria street sellers case study. Agrekon, Vol 39, No 2, June 2000.

BALASSA, B. (1989). *Comparative advantage, trade policy and economic development*. London, Harvester/Wheatsheaf.

FOOD AND AGRICULTURAL ORGANIZATION (FAO) web page: http://www.fao.org.

ISMEA, (1999). *The European Agro-Food System and the Challenge of Global Competition*. Rome.

KASSIER, W.E. (1992). *Report of the Committee of Inquiry into the Marketing Act*. Pretoria, Department of Agriculture.

MASTERS, W.A. (1995*). Guidelines on National Comparative Advantage and Agricultural Trade*. Agricultural Policy Analysis Project, Phase III, USAID.

MAVHANDU, B.F., VAN ROOYEN, C.J. & VAN SCHALKWYK, H.D. (1998) An analysis of the informal food marketing system in Kagiso and Orange Farm. Agrekon,Vol 37, No 4, December 1998.

PORTER, M.E. (1990). The competitive advantage of nations. Londen, Macmillan.

SOLER, L.G. & TANGUY, H. (1998). *Coordination between production and commercial planning: organizational and modeling issues.* Int. Trans. Opl Res, 5(3): 171-188.

THIRTLE, C., TOWNSEND, R.F., AMADI, J., LUSIGI, A. & VAN ZYL, J. (1998) *The rate of return on expenditures of the South African Agricultural Research Council.* Agrekon 37(4): 621-631.

VAN ROOYEN, I.M. (1998). *An Investigation into the Competitiveness of the South African and Australian Flower Industries*. Unpublished M. Com. research report, University of Pretoria, School of Natural & Rural Systems Management, The University of Queensland, Australia.

VENTER, R. (1999). *Competitiveness of the Southern African sheep industry.* Southern African Livestock Producers Organization Conference, Swakopmund, July, 1999.

WORLEY, T. (1996). *PNW Agricultural Trade: Comparative Advantage and Competitiveness are Fundamental.* Web page: http://ag.arizona.edu/AREC/WEMC/papers/PNWAgTrade.html

ZUURBIER, P. (1999) *Supply chain management.* Lecture notes, Universities of Pretoria and Stellenbosch. Agricultural Business Chamber (ABC), Pretoria, August 1999.