# Competing at the "Cutting Edge": Opportunities for Agribusiness Partnerships and Co-operation in the Southern African Region

**Van Rooyen, C.J., Esterhuizen, D. & Doyer, O.T.**

**Working paper: 2000-03**

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

# South Africa

## COMPETING AT THE "CUTTING EDGE": OPPORTUNITIES FOR AGRIBUSINESS PARTNERSHIPS AND CO-OPERATION IN THE SOUTHERN AFRICAN REGION

Van Rooyen, C.J., Esterhuizen, D. & Doyer, O.T.
Johan.lbk@agriinfo.co.za, dirk.lbk@agriinfo.co.za, tobias@scientia.up.ac.za

*What are the opportunities for agricultural business, trade and co-operation in Southern Africa and, in particular, South Africa and Zimbabwe - two of the most significant economies in the SADC region? The competitiveness status of agribusiness - from a global viewpoint - in sixteen food and fibre supply chains in Zimbabwe and South Africa is determined in this study using the Revealed Comparative Advantage method of Balassa. Based on this status, there is potential in certain agro-food chains for supply chain integration and co-operation between agribusinesses in South Africa and Zimbabwe. Such partnerships will improve competitiveness and will allow agribusinesses to compete at the "cutting edge" in the global environment.*

## 1. INTRODUCTION

The current turmoil in Zimbabwe obscures the real opportunities for collaborative partnerships and co-operation between agribusiness firms in these two countries to forge a development path for internationally competitive agro-food and fibre industries in the greater Southern African sub-continent. What are the real competitive advantages and opportunities for agricultural business, trade and co-operation in Southern Africa and, in particular, South Africa and Zimbabwe, two of the most significant economies in the SADC region?

Two major forces influence the strategic environment in which farmers and agribusinesses in Southern Africa operate, viz the drive towards economic globalisation 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); and socio-political forces which *inter alia* emphasise land reform and the integration of "historically disadvantaged groups" such as small scale agriculturists into the main stream of decision-making, governance and economic participation (Van Rooyen, Greyling & Esterhuizen 1999),

This paper deals with the former aspect – agribusiness and trade through specialisation and co-operation within the agro-food supply chain in the Southern African region, in order to exploit competitive positions and allow agribusiness partnerships to operate at the competitive cutting edge in the global economy. The Revealed Comparative Advantage (RCA) methodology of Balassa (1977; 1986) will be used to determine the competitiveness status of various agro-food supply chains in Zimbabwe and South Africa. From this an optimal regional collaboration pattern for partnerships could be devised.

## 2. THE RELEVANCE OF THE AGRO-FOOD SUPPLY CHAIN

A recent international survey (Zuurbier, 1999) indicated that vertically integrated supply chains and networks and trust relationships are expected to determine the structure of the food and agribusiness industry in the next

decade (Table 1). The most important driving forces are expected to be technology and an understanding of consumer behaviour (Table 2).

A supply chain focus on competitiveness is necessary because such an analysis (or added value analysis) will indicate the competitiveness of each element or activity in a particular value chain. Furthermore, a "supply chain perspective" gives substance to a particular description of the food and agribusiness sector, *viz* the integrated nature of the supply chain requires business transactions between all production processes – from the farm, past the farm-gate to processing, manufacturing, retailing and right up to serving the end consumer. In the agro-food supply chain analysis conducted in this paper, agribusiness will be defined to include farming – primary agribusiness – and all other transactions between suppliers, processors and service providers who deal directly with primary producers – secondary agribusiness. This definition will include co-operatives, input supply companies, agro-processors, financial institutions and other service providers, processors, etc. linked to the farmer.

Supply chain interaction is currently viewed as one of the most important phenomena in the food and agricultural industry of the future. Value will be added or lost if the supply chain is not functioning in an effective and efficient manner. The importance of consumer demand (mass individualisation) is expected to dominate high value world markets and unless such demands are transmitted timeously and accurately to primary producers, farmers will find it difficult to compete effectively in such markets. In future supply chains will compete with each other and, if only certain elements in the supply chain perform efficiently, the full potential for value-adding will not be realised (Worley, 1996). An uncompetitive supply chain will therefore jeopardise farm level profitability and *vice versa*.

**Table 1: 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 |
| Vert integrated supply chains | 0,85 | 0,91 | 0,90 | 0,88 |
| Sport markets | 0,23 | 0,19 | 0,20 | 0,21 |
| Networks of companies | 0,92 | 0,88 | 0,95 | 0,91 |
| Virtual networks of companies | 0,58 | 0,72 | 0,70 | 0,67 |
| | 0,77 | 0,56 | 0,60 | 0,64 |
| More fragmented markets | 0,15 | 0,44 | 0,45 | 0,35 |
| Increase in small companies | 0,73 | 0,84 | 0,80 | 0,79 |
| Increase in global companies | 0,81 | 0,78 | 0,80 | 0,79 |
| Electronic markets | 0,27 | 0,28 | 0,20 | 0,26 |
| Less trust/more opportunism | | | | |

(percentage agreed: 0 = none, 1 = all)

**Source:** Zuurbier, 1999

**Table 2: 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 |

(1 – not important: 5 – very important)

**Source:** Zuurbier, 1999

## 3. COMPETITIVENESS OF THE AGRO-FOOD INDUSTRY IN SOUTHERN AFRICA

To determine the competitiveness status and trends in competitiveness of agro-food industries (beverages included) of Zimbabwe and South Africa, Balassa's (1977, 1986) Revealed Comparative Advantage[1] method was used (for a more detailed description of the method see Esterhuizen & Van Rooyen, 1999 and also ISMEA, 1999). Table 3 shows the results of 16 supply chains and 53 industries that were analysed. The following are some important conclusions:

**Marginal competitiveness:** The South African agribusiness industry as a whole is generally marginal in so far as international competitiveness is rated as many RTA values are situated around zero (wheat, sugar, soybeans, tomatoes, beef, milk, pork, coffee, tobacco). This implies that minor adjustments and increased productivity can contribute towards changing negative situations into positive situations. It will, however, be important to identify the particular set of supply chain interactions and to pinpoint the processes that need to be upgraded. This means that a more comprehensive analysis for each supply chain is required.

---

[1] *RTA is formulated as:*

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

$$RXA_{ij} = (X_{ij}/\Sigma_{l,\, l\neq j} X_{il})/(\Sigma_{k,\ k\neq i} X_{kj}/\Sigma_{k,k\neq i}\ \Sigma_{l,\ l\neq j}\ X_{kl}) \quad \ldots 2$$

$$RMP_{ij} = (M_{ij}/\Sigma_{l,\ l\neq j} M_{il})/(\Sigma_{k,\ k\neq i} M_{kj}/\Sigma_{k,k\neq i}\ \Sigma_{l,\ l\neq j}\ M_{kl}) \quad \ldots 3$$

*Equations 2 and 3, X (M) refer to exports (imports), with the subscripts i and k denoting the product categories, while j and l donate the country categories. The numerator is equal to a country's export (imports) of a specific product category relative to the exports (imports) of this product from all countries but the considered country. The denominator reveals the exports (imports) of all products, except the considered commodity from the respective country, as a percentage of all other countries' exports (imports) of all other products. The level of these indicators shows the degree of revealed export competitiveness/import penetration.*

*While the indices RXA and RMP are calculated based exclusively on either export or import values, the RTA considers both export and import activities. From the point of view of trade theory and globalisation trends, this seems to be important and given the growth in intra-industry and/or entrepot trade, this aspect is becoming increasingly important (ISMEA, 1999). The RTA indicator implicitly weights the revealed competitive advantage by calculating the importance of relative export and relative import competitive advantages. Values below (above) zero point to a competitive trade disadvantage (advantage).*

Zimbabwean agricultural commodity chains are in general more competitive but also more diverse in competitiveness status. The cotton industry competes strongly with the pig, cattle, sheep and tomato chains.

**Competitiveness within supply chains:** In South Africa the maize, groundnut and orange chains are competitive. Except for the wheat, maize, tobacco and tea chains, competitiveness in all other chains decreases from primary to processed products. In Zimbabwe the maize chain, sugar, sunflower, oranges, cotton, coffee, and tobacco chains are internationally competitive. However, all chains in both countries show a downward trend in value adding ability. This implies that beneficiation or "value adding" opportunities in Southern African agribusiness are limited. For most commodities, however, farm production level competitiveness is positive. One possible explanation for this could be the high impact recorded for farm level transfer and application of technology at farm level (Thirtle *et al*, 1998).

**Trends and variations in competitiveness over time**: Except for wheat flour, maize meal, unshelled groundnuts, shelled groundnuts, oranges (all positive trends), sunflower oil, sunflower cake and the cotton chain (all negative trends), there was no great variance in the competitiveness of South African agro-food chains during the period 1980 and 1997. South Africa has been able to maintain constant competitiveness in most of its food chains, but is this good enough for sustained trade in the highly competitive global economy?

Zimbabwe shows greater variance in the competitiveness of its agro-food chains over the years. The soybean and groundnut chains have negative trends in competitiveness from 1980 onwards. Maize, sugar and cotton chains as well as the primary production of sunflower, oranges, coffee, tea and tobacco leaves show positive trends in competitiveness.

For both countries it will be important to "discover" the underlying reasons for non-competitiveness and/or the declining trends in competitiveness. Does it relate to a lack of technological innovation in processing, unproductive labour

application, high input cost, low product quality or inefficient management or maybe bad government policy and “unfair” international competition? And whose efforts to upgrade competitiveness will record the highest impacts? The status of the following, in particular, will have to be determined for each chain: the level of production factor costs; demand trends; the competitiveness of supporting industries; industry structure; strategy and rivalry; government policies and support. The ability to manage change should also not be discounted (Porter, 1990).

For the Southern African (SADC) region as a whole low RCAs are recorded. This indicates the low potential for global trade by this bloc. Countries in the region, especially Zimbabwe and South Africa, should instead focus on bilateral trade.

A limitation of RCA analysis is that it says nothing about how a country acquired its international market share. Market share may well be attained by means of costly export subsidies paid by the big world economies 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 SADC region’s agribusinesses the reality of “unequal” playing fields (Van Rooyen *et al*, 1999) is indeed important. Without comprehensive policy and 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 Southern 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 is unlikely. The region should therefore attempt to mobilise and “cope-with-the-slope” while attending to “unfair” trade practices as an economic bloc at World Trade Organisation level. This strategy is currently absent! The next section will deal with this issue, i.e. how to operate at the “cutting edge”.

**Table 3: Competitive advantage of selected agribusiness chains in Zimbabwe, South Africa and SADC and trends in competitiveness as from 1980, based on the Relative Revealed Trade Advantage (RTA) index**

| Sector Chain | Industries | ZIM RTA 1997 | Trend 1980-97 | SA RTA 1997 | Trend 1980-97 | SADC RTA 1997 |
|---|---|---|---|---|---|---|
| Wheat chain | Wheat | -2.79 | - | -0.77 | = | -1.53 |
| | Flour | 16.31 | + | 1.60 | + | -1.68 |
| | Macaroni | -0.43 | = | -0.39 | = | -1.14 |
| | Pastry | 0.26 | = | 0.06 | = | -0.04 |
| | Bread | -0.16 | = | -0.11 | = | -0.36 |
| | Breakfast cereals | -0.86 | = | -0.20 | = | -0.44 |
| Maize chain | Maize | 9.34 | + | 3.72 | = | 1.57 |
| | Maize meal | 3.57 | + | 10.10 | + | -9.96 |
| Sugar chain | Sugar (Centrifugal, Raw) | 24.30 | + | 3.00 | = | 15.40 |
| | | 8.66 | + | 1.86 | = | -0.76 |
| | Sugar refined | 3.45 | + | 0.39 | = | 0.08 |
| | Sugar confectionery | -0.35 | n/a | -0.03 | = | -0.04 |
| | Maple sugar and syrups | | | | | |
| Soybean chain | Soybeans | -1.85 | - | -0.11 | = | -0.23 |
| | Soybean oil | -5.56 | - | -0.43 | = | -2.02 |
| | Soybean cake | 0.10 | - | -1.53 | = | -1.09 |
| | Soya sauce | -0.21 | n/a | -0.27 | = | -0.48 |
| Groundnut chain | Unshelled groundnuts | 0.00 | - | 8.69 | + | 5.43 |
| | | 3.78 | - | 5.12 | + | 3.10 |
| | Groundnuts shelled | -0.04 | - | 4.17 | = | 2.67 |
| | Groundnut oil | -0.01 | n/a | 0.05 | n/a | -0.19 |
| | Prepared groundnuts | | | | | |
| Cotton chain | Cotton seed | 73.31 | + | -5.62 | - | 5.14 |
| | Cotton seed oil | 3.05 | + | -2.55 | - | -1.62 |
| | Cotton seed cake | 26.93 | = | -12.01 | - | -2.24 |
| | Cotton lint | 32.35 | = | -1.24 | = | 2.25 |
| | Cotton carded combed | 32.27 | + | -1.70 | - | 0.33 |
| | Cotton lint | 2.90 | = | 0.21 | = | 0.23 |
| Sunflower chain | Sunflower seed | 4.03 | + | -0.36 | = | -0.02 |
| | Sunflower oil | -0.55 | - | -6.62 | - | -5.51 |
| | Sunflower cake | 0.33 | = | -5.97 | - | -3.73 |
| Tomato chain | Tomatoes | -0.17 | = | 0.07 | = | -0.13 |
| | Tomato juice | -0.06 | = | -0.08 | = | -0.14 |
| | Tomato paste | -0.17 | = | -0.06 | = | -1.64 |
| | Peeled Tomatoes | 0.10 | n/a | -0.78 | = | -0.59 |
| Orange chain | Oranges | 5.04 | + | 13.67 | + | 9.53 |
| | Orange juice | 0.47 | = | 0.39 | = | -0.16 |
| Coffee chain | Coffee green | 6.14 | + | -0.41 | = | 1.83 |
| | Coffee roasted | 0.04 | = | -0.24 | = | -0.26 |

| Sector Chain | Industries | ZIM RTA 1997 | Trend 1980-97 | SA RTA 1997 | Trend 1980-97 | SADC RTA 1997 |
|---|---|---|---|---|---|---|
| | Coffee extract | -0.27 | = | -0.00 | = | -0.12 |
| Tea chain | Tea | 18.20 | + | -1.49 | = | 1.75 |
| | Tea prepared | -1.33 | n/a | -0.01 | n/a | n/a |
| Tobacco chain | Tobacco leaves | 202.68 | + | -0.83 | = | 16.61 |
| | Cigarettes | 1.68 | = | 0.42 | = | -0.20 |
| | Tobacco products | 5.44 | = | -0.03 | = | -0.63 |
| Beef chain | Cattle | 0.11 | = | -3.76 | = | -0.74 |
| | Beef and veal | 0.01 | - | -0.13 | = | -0.57 |
| Mutton chain | Sheep | -0.01 | = | -5.17 | - | 0.07 |
| | Mutton and lamb | -0.02 | = | -1.73 | - | -1.70 |
| Milk chain | Cow milk (whole, fresh) | 8.87 | + | 0.27 | = | -0.68 |
| | | -0.67 | = | -0.70 | = | -0.77 |
| | Butter from cow milk | -0.21 | = | -0.24 | = | -0.34 |
| | Cheese | | | | | |
| Pork chain | Pigs | -0.28 | = | 0.02 | = | -0.16 |
| | Pork | 0.60 | = | -0.42 | = | -0.37 |
| | Bacon-ham | 0.02 | = | 0.00 | = | -0.19 |

**Source:** Own calculation based on data from FAOSTAT 1999, and using Balassa's Revealed Trade Advantage method. '+' positive trend; '-' negative trend; '=' constant trend

See footnote 1 for RTA index formula

## 4. OPERATING AT THE "CUTTING EDGE": TO CREATE REGIONAL CO-OPERATION AND TRADE OPPORTUNITIES

Trade analyses show that the majority of agricultural commodities in the SADC region are produced for local consumption, with limited volumes destined for neighbouring countries. Agricultural trade between South Africa and other African countries consists basically of Zimbabwean exports to South Africa and South African exports to Mozambique, with regional trade focusing on commodities such as tobacco, dairy products, vegetables, sugar and beef products. This more or less reflects the competitive advantage status of the region (Sartorius Von Bach & Van Rooyen, 1998). However, due to structural, policy and political changes, it is expected that regional trade will increase in future.

Does the current competitiveness status provide a basis for co-operation to facilitate trade in the global economy, in the region and in particular between

Zimbabwe and South Africa, as the major economies? **Table 4,** which is based on the competitive advantage ratings in Table 3, illustrates this potential through chain integration, partnerships and alliances.

This information relates only to industries that can be rated as competitive (i.e. RTA > 0). Depending on free trade and the level of transportation costs, added value can be increased by exploiting “competitive edge” positions and focusing on those locations in the region where the highest competitiveness index for a particular activity in a chain is recorded. The following activities can be noted: Wheat flour milling in Zimbabwe; Maize production in Zimbabwe and maize meal milling in South Africa; Cotton activities and sunflower processing in Zimbabwe; Orange activities in South Africa; Tea and coffee chain activities in Zimbabwe; Cattle and milk chain activities in Zimbabwe (there is no clear competitive edge position for pig chain activities); Fresh tomato production in South Africa and peeled tomato processing in Zimbabwe.

**Table 4: Supply chain integration between South Africa and Zimbabwe**

| INDUSTRY CHAIN | PROCESS | COMPETITIVE EDGE |
|---|---|---|
| **Wheat** | • **Flour** | **Zimbabwe** |
| **Maize** | • **Maize (raw)**<br>• **Flour** | **Zimbabwe**<br>**South Africa** |
| **Sugar** | • **Full chain** | **Zimbabwe**<br>**(South Africa)** |
| **Groundnuts** | • **Full chain** | **South Africa** |
| **Sunflower** | • **Full chain** | **Zimbabwe** |
| **Tomatoes** | • **Tomatoes (fresh)**<br>• **Tomatoes (peeled)** | **South Africa (marginal)**<br>**Zimbabwe (marginal)** |
| **Oranges** | • **Oranges (fresh)**<br>• **Orange juice** | **South Africa**<br>**South Africa** |
| **Tea** | • **Tea (raw)** | **Zimbabwe** |
| **Tobacco** | • **Full chain** | **Zimbabwe** |
| **Coffee** | • **Full chain** | **Zimbabwe** |
| **Cotton** | • **Full chain** | **Zimbabwe** |
| **Cattle** | • **Full chain** | **Zimbabwe (marginal)** |
| **Milk** | • **Full chain** | **Zimbabwe (marginal)** |
| **Pigs** | • **Full chain** | **Both (marginal)** |

This analysis does not imply specialisation in any country, only international tradability. However, if the “competitive edge” in the global environment is to be exploited, strategic alliances and joint ventures across borders should consider the above competitive edge positions for operational location of a particular industry within a sector supply chain strategy.

## 5. CONCLUSIONS

World trade is driven by the competitive advantage that firms in countries have in producing different goods and services. It is clear that changes in farm production structure as well as the relocation of agribusiness activities can be expected worldwide given increasing pressure to operate at the competitive

edge. With the removal of trade barriers, a different Southern African farming and agribusiness community will emerge. Many more joint ventures and partnerships can be expected to allow for the exploitation of competitive edge positions within industry supply chains. To compete in a global economy Southern African farmers and agribusinesses will have to be competitive. Scarce resources will have to be optimally utilised and focused on the creation of pockets of excellence embracing the concept of the agricultural value chain. This will highlight each input supplier, producer and processor's ability to compete globally, i.e. it is no longer good enough for farmers to be competitive only farm gate level, while the locally processed commodity is not competitive in the world market.

**REFERENCES**


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

ESTERHUIZEN, D. & VAN ROOYEN, C.J. (1999). *How competitive is the South African agro-food industry?* Agrekon, No 4, December 1999.

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

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

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

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.* Agrecon 37(4): 621-631.

TWEETEN, L. (1993). *Trade regionalism: promise and problems.* American Journal for Agricultural Economics, 75: 810 – 816.

VAN ROOYEN, C.J., GREYLING, M.J., & ESTERHUIZEN, D. (1999). *Agricultural Business in South Africa: The road ahead.* Paper presented at the IIR Conference, Johannesburg, South Africa, October 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.