THE MARKET POTENTIAL OF THE SOUTH AFRICAN APPLE INDUSTRY: STRATEGIES AND OPTIONS

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Abstract

This paper uses one of four possible areas of strategic market research, namely Trademaps[2], to analyse the South African market potential for deciduous fruit. It isolates the apple industry to illustrate the application of Trademaps. An overview of the export performance within the apple industry is given. Export Trademaps are then utilised to analyse the trade flows and the market potential of South African apples on the world market. The Trademaps generated are based on trade data for the years 1995 to 1999 as reported by nearly 100 trading nations in the COMTRADE database of the United Nations Statistical Division.

Possible strategies and options are suggested, given the results of the Trademap analysis. It is concluded that this analysis demonstrates the usefulness of Trademaps as a research tool to provide market information on new and existing markets.

1.   INTRODUCTION

Weathering the storm of international trade inequalities and competition in agriculture requires a strategic market approach. By merely attending World Trade Organisation (WTO) negotiations and attempting to negotiate a better deal for South African exporters on a line-by-line tariff basis does not solve our problems. This is so because developed countries dominate negotiations. Even where progress is made with regard to market access for South African products, the European Union (EU) and USA, in the main, often unilaterally alter these rules. Examples are the recent unilateral changes in farmer subsidies announced by the USA and recent attempts by the EU to have qualitative barriers to entry altered (see Willemse, 2002; Meyer *et al*, 2002).

Nevertheless, given the current position regarding trading conditions, some products could be produced competitively whilst others may not. It would thus make sense to first identify those products that have a comparative advantage and focus South Africa's agricultural export strategies on those

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[2] *Refers to an interactive Internet application supplied by the International Trade Centre (ITC).*

products instead of trying to promote and produce products that have no comparative advantage.

What is required, therefore, is a strategic market research approach. Strategic market research refers to the benchmarking of national and sectoral trade performance and to the identification of priority products and markets for trade development, both by the public and the business sectors (Steenkamp, 1999).

There are four areas of strategic market research, namely:

- Trademaps for identifying the most important exports;
- Trade Potential Indexes, which reveal the competitive and comparative advantages of exports;
- Market diversification prospects; and
- Trade Simulation to identify trade potential.

This paper utilises one of the four possible areas of strategic market research, namely Trademaps, to analyse the South African market potential for apples. Finally, this paper will propose some strategies and options for the apple industry.

2.   INDUSTRY PROFILE

2.1 Contribution

The deciduous fruit industry is the most important sector by gross value of the horticultural industry contributing more than 28,7% of the total gross value of this sector in 2000/01. It has become a world player in the export market, generating over R4,6 billion a year in export earnings (CIAMD, 2001). There are approximately 2,500 deciduous fruit farmers utilising a total area of 76,676 hectares, providing employment opportunities to more than 104,439 farm workers (Table 1).

Table 1:   Deciduous Fruit Industry: Land-use and employment, 2002

Type	Area	Employment	Dependants
	(ha)	(Farm workers)	(persons)
Apples	22,454	28,068	112,272
Pears	12,912	16,140	64,558
Table grapes	20,643	35,093	140,371
Plums	4,962	6,699	26,796
Peaches	9,575	11,490	45,959
Nectarines	1,379	1,724	6,896
Apricots	4,751	5,226	20,904
Total	**76,676**	**104,439**	**417,756**

Source: OABS, 2003.

2.2   Main products

The most important fruit products in the horticultural sector by gross value of production in 2000 were table grapes, followed by apples, pears, peaches and plums. On the basis of volume produced, apples are the most prominent crop followed by pears and table grapes. The area planted by fruit type is shown in Figure 1.
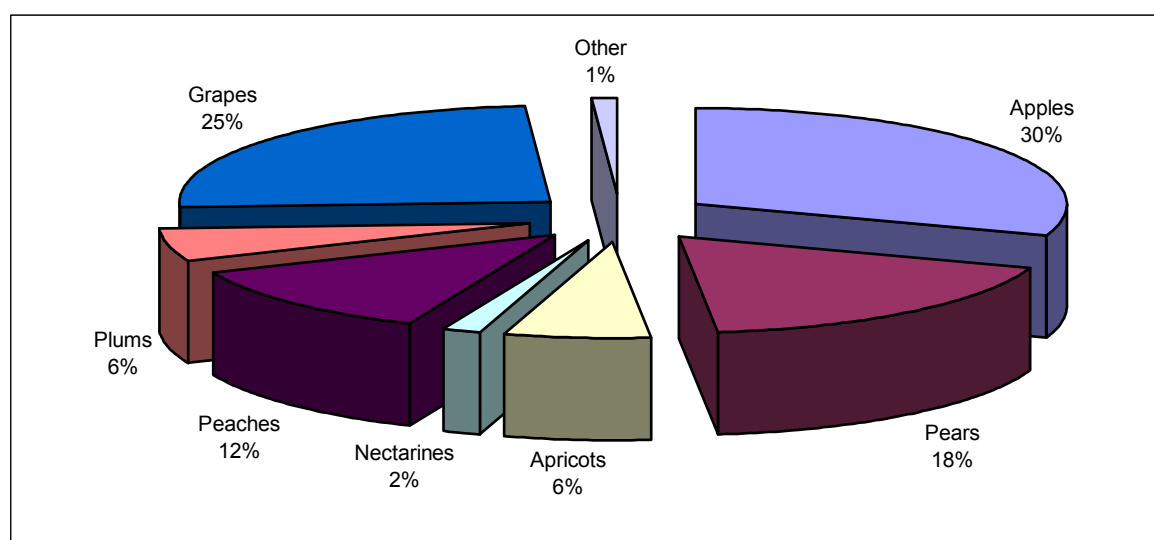
Total area: 75 336 ha

Figure 1: Percentage of area planted to deciduous fruit, 2000

Source: National Department of Agriculture, 2000.

Apples are by far the most important export fruit by volume. According to a tree census, which shows the most prominent cultivars and their geographic distribution, there are at present 18 million trees in the Western Cape occupying 18,879 ha (DFPT, 2000). The main apple production areas are Ceres, Groenland and Villiersdorp (see Appendix A). Tree censuses show that Golden Delicious and Granny Smith are the most prominent cultivars. The cultivar distribution is shown in Table 2.

Table 2:   Cultivar distribution of apples, 1999

Cultivar	Hectares
Granny Smith	7,045
Golden Delicious	5,474
Other	2,863
Royal Gala	2,131
Starking	2,030
Topred	1,594
Pink Lady	1,131
Braeburn	633
Total	22,901

Source: DFPT, 2000.

2.3 Production efficiency

From a production efficiency viewpoint, according to the World Apple Report (2000), South Africa lags far behind the rest of the world and would find it increasingly difficult to compete on the world market (see Appendix B). Overall South Africa is ranked 8th in the world in terms of the criteria listed.

New Zealand, first in the overall rating, manages to produce apples with a better cultivar mix at an average annual yield of 50t/ha compared to South Africa's average yield of 40t/ha.

2.4 World market trends

It is expected that China will produce more than 50% of the world apple production by the year 2005 compared to its current market share of 40%. South Africa currently produces about 4% of the world production.

According to the World Apple Report (2000), the expected increase in world production (over-production) would put downward pressure on world market prices, given current consumption levels. According to the Report, the following production increases up to 2005 are expected: the EU (26%), USA (21%), Asia (40%) (China's growth included) and the Southern Hemisphere (21%). It is however, unlikely that apple consumption levels will remain static. Experts general believe as the standard of living increases in countries where apples are exported to, apple consumption will increase (Warner, 2002).

Strategically, the increase in China's apple production could impact on the world apple market in many possible ways. China's growing economy could spur domestic consumption of apples and China could, for example, opt to feed its population or export the surplus production to other Far East markets such as Taiwan, Singapore and Indonesia. Doing so will erode some of the USA's traditional markets in the Far East. It should be borne in mind that China exported only a small portion of its output - about 1,5% last year (Karst, 2002). The USA could, in response, consume more apples locally or export to the EU. This could cause a chain reaction that will affect Chile, which markets most of its apples in the US, and cause it in turn to possibly divert its exports to the EU. This increased competition could then encourage EU farmers to market their produce locally.

China's apple dynamics according to Skorburg (2001) may ultimately dictate the health of the world apple industry. Apple yields and quality are improving and China is producing apples cheaper. China is becoming more

advanced and sophisticated in their logistical supply chains and the impact is visible in the Pacific Rim. Competition in the export market is therefore expected to increase, even if world consumption levels improve according to Warner (2002).

Chile is currently the largest exporter of apples followed by New Zealand, Argentina and South Africa (Ferrandi, 2001). The EU is traditionally South Africa's biggest fruit export market and is likely to remain the main export destination of at least 50% for South African fruit exports for the next decade, including apples.

The world apple market has changed. Several factors including the cultivation of new cultivars, focus on eating quality as opposed to cosmetic appearance, an increase in the global supply of fresh apples and the emergence of the supermarket industry as distribution channel for apples will continue to shape the industry.

3.   RESEARCH METODOLOGY

Information on the export portfolios of many developing countries such as South Africa remains incomplete, which makes it difficult for policy makers to assess in which products their country has a comparative advantage.

Trademaps are used to analyse the trade flows and the market potential of South African apples on the world market. The Trademaps generated are based on trade data for the years 1995 to 1999 reported by nearly 100 trading nations in the COMTRADE database of the United Nations Statistical Division. These reporting countries account for nearly 90% of world trade (ITC, 2000).

Trademap analysis produces two sets of results, i.e. a table and a chart in respect of each individual analysis. This paper makes use of a product Trademap analysis that produces both a chart (Figure 2) and a table (Table 3). In Figure 2, the chart indicates the average nominal growth of total exports for the period 1995 to 1999 of South Africa (dotted vertical reference line) and the average nominal growth of world imports over the same period (horizontal reference line). The diagonal line represents the line of constant world market share which divides the chart into two parts: South Africa's exports of apples to the right of this line have grown faster than world imports and thereby have increased their share in the world market. Conversely, products to the left of the diagonal line have experienced erosion of their world market share. The diagonal and horizontal reference lines are of particular interest from a

trade development perspective, since they divide the chart into four quadrants as follows (also see Steenkamp, 1999):
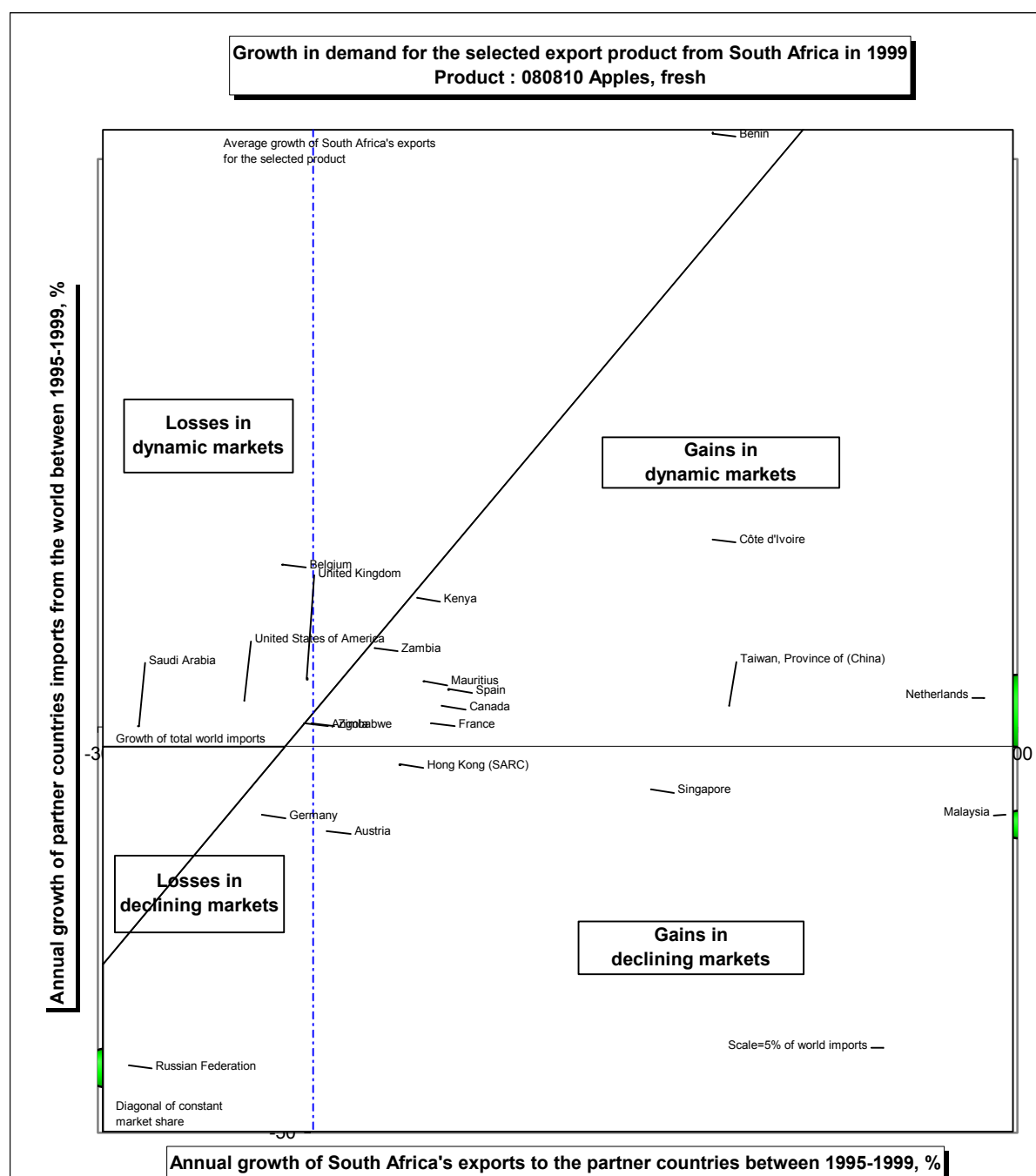

Growth in demand for the selected export product from South Africa in 1999
Product : 080810 Apples, fresh

Figure 2: Growth in world demand for South African apple exports, 1999
Source: ITC, 2000.

Gains in dynamic markets (Upper right, first quadrant)
These are markets that are growing at a faster rate than world trade in general and where South Africa has been able to outperform world market growth and increase its share in world exports.

Losses in dynamic markets (Upper left, second quadrant)
These markets present particular challenges for trade promotion. While international demand has been growing at above average rates, South African exports have declined or have grown less dynamically.

Losses in declining markets (lower left, third quadrant)
The export prospects for these markets tend to be bleak. World imports of the product concerned have increased at a below average rate or actually declined and the exporting country's market share has decreased.

Gains in declining markets (lower right, fourth quadrant)
For a particular product, South Africa is increasing its market share in the world import market, which is declining or growing below average. From a trade promotion perspective, niche-marketing strategies are required to isolate positive trade performance from the overall decline in these markets.

Theoretically the charts also provide an overview of concentration of exports: the location of a number of large bubbles in one locality shows that exports are highly concentrated. The chart shows the export value of the product under review (size of the bubbles). All growth rates are calculated as least–square trends based on simple linear regressions.

The degree of concentration can vary from a situation with no concentration (total diversification) to a situation of total concentration. The results presented in this paper are based on relative concentration measures and specifically Lorenz-curves and Gini-coefficients that are used to determine inequality/skewness or concentration in South African trade with the rest of the world.

The Lorenz-curve is based on the share of total trade that accrues to different regions/countries starting with the smallest and working up to the largest. The Lorenz-curve can also be used to define a common measure of inequality or concentration, generally known as the Gini-coefficient (Sydsaeter & Hammond, 1995). According to Lubbe (1992), the Gini-coefficient is a more precise measure of measuring concentration. The Gini-coefficient is denoted by the following equation:

$$G_i = \left[\sum_{i=1}^{n} \left[\frac{X_{ij}}{X_i} \right]^2 \right]^{1/2} \times 100 \qquad (1)$$

with*:*

X_{ij}	=	*Exports (imports) from country i to j*
X_i	=	*Total export (import) volume of country i*
i	=	*1…n*

A Gini-coefficient equal to zero denotes that trade is equally distributed amongst regions/countries; if it is equal to one, trade is restricted to only one country.

4.　RESULTS

A Trademap analysis of South African apple exports to the world market shows that the EU destination market represented nearly 72% of the total export market in 1999. Gini coefficients of 0.71 calculated for the value of trade and quantity traded, respectively confirms that the market is highly concentrated with export destined for only a few EU countries. The UK (38%), Belgium (13%) and the Netherlands (12%) are the most important trading partners (Table 3). This captured market underlines the vulnerability of SA apples exports to changes in the EU demand for apples.

South African exports would therefore be highly vulnerable and exposed to changes in product tastes and preferences within the EU countries.

South Africa has lost some of its market share in the EU market while the export market has shown little growth over the period 1995 to 1999, i.e. the gains in the market have equalled the losses. The final results of the Trademap analysis were as follows (see Table 3 and Figure 2):

- *Growth rate of South Africa's exports in the world market*: 0%.

- *Gains in dynamic markets*: Taiwan, Netherlands, Mauritius, Spain, Canada, France.

- *Losses in dynamic markets*: South Africa has lost market share in Belgium, UK, USA and Saudi Arabia. These losses could be converted to gains through increased trade promotion efforts.

- *Gains in declining markets*: South Africa has increased its market share in Hong Kong, Singapore, Malaysia and Austria, although demand has decreased over the period.

- *Losses in declining markets*: Germany.

Table 3: South African apple[3] exports to world markets, 1999

Importers	Exported value 1999 in Rands thousand	% share in RSA exports	Exported quantity	Unit	Unit value	Export trend in value between 1995-99	Ranking of partner countries in world imports	Share of partner countries in world import %	Total import growth in value of partner countries between 1995-99 % p.a.
World	597,106	100	250,817	Tons	2.4	0	0	0	-4
EU Market	428,928	72	176,856	Tons	2.4	0	0	0	0
UK	229,382	38	92,216	Tons	2.5	-1	1	14	0
Belgium	78,190	13	29,903	Tons	2.6	-9	4	6	18
Netherlands	70,717	12	33,507	Tons	2.1	300	3	7	2
USA	37,485	6	16,497	Tons	2.3	-10	6	5	-1
Germany	27,501	5	10,622	Tons	2.6	-14	2	13	-12
Malaysia	14,505	2	6,850	Tons	2.1	276	32	1	-12
Canada	13,118	2	5,108	Tons	2.6	15	10	3	1
Mauritius	12,605	2	6,074	Tons	2.1	15	57	0	4
France	11,969	2	5,487	Tons	2.2	14	12	2	-1
Singapore	9,477	2	3,659	Tons	2.6	46	19	1	-9
Zimbabwe	8,432	1	5,865	Tons	1.4	-1	81	0	-1
Kenya	8,212	1	3,746	Tons	2.2	14	83	0	14
Hong Kong (SARC)	8,090	1	3,302	Tons	2.4	9	11	3	-6
Saudi Arabia	7,491	1	2,881	Tons	2.6	-25	14	2	-3
Angola	5,071	1	1,726	Tons	2.9	-2	92	0	-1
Taiwan, Province of (China)	4,301	1	1,200	Tons	3.6	59	9	3	-1
Benin	3,831	1	1,674	Tons	2.3	56	60	0	70
Côte d'Ívoire	3,782	1	2,095	Tons	1.8	56	75	0	21
Zambia	3,635	1	1,880	Tons	1.9	8	103	0	8
Russian Federation	3,507	1	1,330	Tons	2.6	-29	15	2	-42
Austria	3,477	1	1,278	Tons	2.7	0	28	1	-14
Spain	2,713	0	1,733	Tons	1.6	15	5	5	3
Mozambique	2,609	0	1,329	Tons	2.0	16	112	0	16
Italy	2,591	0	1,167	Tons	2.2	-18	29	1	-10
Greece	2,389	0	943	Tons	2.5	-10	37	0	-8

Source: ITC calculations based on COMTRADE statistics, 1999 (as adapted).

5.   CONCLUSIONS

This paper set out to use Trademaps as a tool of analysis in strategic market research to indicate that it is a useful and meaningful way of determining export strategies. The analysis shows the changes that have occurred in South Africa's relative position in the world market. The results generated in Table 3 clearly indicate the nominal value of SA apple exports to each of South Africa's export destinations during the last year of the analysis, the share that it constitutes in South Africa's export total, the quantity exported to each destination, the export trend in value over the period of the analysis, ranking of partner countries in world import of apples, the share of partner country

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[3] *Refers to Harmonised System (HS) category 080810.*

imports expressed as a percentage, and the total import growth in value of partner countries over the period of the analysis. Furthermore, the analysis clearly indicates in the chart (Figure 2), which of the world's import destinations (SA's export markets) are showing declining growth and which increasing growth in demand for apples.

Where South Africa has shown gains in dynamic (increased growth) markets, it was able to compete successfully in growing markets and therefore should aim to identify the factors that lead to successes in these markets in order to include them in its export strategies. Where South Africa has had losses in dynamic markets it should identify the factors that caused it to lose market share and design and implement new export strategies. Where South Africa experienced gains in declining markets it has outperformed other exporting countries. For these export destinations the success factors should again be identified and incorporated in the design and implementation of new export strategies.

It is clear that different markets would require different export strategies. The information provided by the Trademap analysis in combination with feedback and business information from the business sector, according to Steenkamp (1999), provide the best basis for building export strategies.

5.1   Strategies

Strategic export marketing requires first and foremost information about the environment in which one is operating. Typical models (see Strydom *et al*, 2000) of strategic marketing requires market segmentation, targeting and positioning. According to Strydom *et al* (2000), marketing instruments used in the total marketing effort would require product decisions, new product development, distribution decisions, marketing communication strategies and pricing decisions.

Within the apple industry, the following are examples of what has been identified as possible factors affecting the relative position of South African apple exporters as indicated in Figure 2:

- Europe is South Africa's traditional export market for apples with a market share of more than 72%. This has however, changed to the extent that its own deciduous fruit market has become more self-sufficient and consumer demand in the EU also changed;

- The abolition of the single-channel marketing system and the introduction of a free marketing system created a surge of private sector agents who

created new opportunities. This, however, also weakened South Africa's negotiating position on world markets;

- At a farm level, the farmers face an extremely sophisticated and competitive market. In addition, they face tariff and non-tariff barriers by the EU, especially strict foreign market quality controls. Furthermore, the unilateral measures to support farmers announced by the USA will pose a new challenge to counter the move and to achieve a fairer global trading environment; and

- The impact of exchange rates, i.e. the volatility in the value of the euro against the dollar impacts negatively on the sector as a large percentage of export income is earned in euro while production costs are incurred in dollars and this causes price uncertainty.

5.2 Options

For South Africa to meet these challenges, possible options, some of which are implemented sporadically, need to form part of a vigorous export marketing strategy that needs to be implemented as part of a national effort. These are:

- Take cognisance of market trends in specific cultivars (varieties) sold on the world market in order to keep track of market requirements to improve the product/cultivar mix to remain competitive on the world market;

- Identify and release new cultivars at a faster rate for commercial production;

- Penetrate new export markets such as the United States, Canada and the Far East which are not yet fully exploited;

- Give Research and Development a strategic direction to address the industry's specific needs. More investment in research into new cultivars is urgently required;

- Investigate the voluntary recentralising of marketing channels to strengthen the negotiating power of the industry, and

- Design hedging strategies for euro receipts and dollar payments in order to optimise on the cost of foreign exchange transactions and provide certainty in pricing decisions.

A lack of market information and research hampers strategic decision-making. This analysis has demonstrated the usefulness of Trademaps as a research tool to provide market information on new and existing markets.

REFERENCES

CIAMD (2000). *Key deciduous statistics*. Paarl.

CIAMD (2001). *Key deciduous statistics*. Paarl.

COOK L (2002). US measures to support farmers. *Business Day, 21 May*, Johannesburg.

DECIDUOUS FRUIT PRODUCERS TRUST (DFPT) (2000). *SADRIN Tree census database.* Paarl

DECIDUOUS FRUIT PRODUCERS TRUST (DFPT) (2002). *Operational information*. Paarl.

FERRANDI C (2001). Sagtevrugte se markneigings. *Landbouweekblad,* 10 Januarie. Kaapstad.

INTERNATIONAL TRADE CENTRE (ITC) 2000. *National Export Performance.* ITC UNCTAD/WTO: Division of Product and Market Development. Switzerland.

KARST T (2002). Import of apples from China far from imminent. *The Packer,* February 18.

GROENEWALD A (2000). Vrugtebedryf sien kans vir taai uitvoermark. *Landbouweekblad*, 31 Oktober. Kaapstad.

LUBBE WF (1992). *The red meat marketing scheme: An evaluation in a dynamic environment.* PhD Thesis, University of Pretoria.

MEYER N, JOOSTE A & VAN SCHALKWYK HD (2002). *The possible impact of the EU-SA Free Trade Agreement*. Unpublished Research Report, Fridge.

NATIONAL DEPARTMENT OF AGRICULTURE (NDA) (2000). *Abstract of Agricultural Statistics.* Pretoria.

OPTIMAL AGRICULTURAL BUSINESS SYSTEMS (OABS) (2003). *Oorsig van die 2002/2003 vrugteseisoen en die impak van watertekorte op toekomstige groei in die bedryf*. Paarl.

STEENKAMP E (1999). *Strategic market research on South African exports: a focus on agriculture*. Working Document, NDA, Geneva.

SKORBURG J (2001). *China Briefing Book – Issue 4*. AFBR Staff Analysis of today's issues. Senior Economist, Economic Analysis Team, American Farm Bureau Federation.

STYDOM JW, JOOSTE CJ & CANT MC (2000). *Marketing Management*. Juta and Co. Ltd, Fourth Edition.

SYDSAETER K & HAMMOND PJ (1995). *Mathematics for economic analysis*. Prentice Hall, International Edition.

THE WORLD APPLE REPORT (2000). Competitive rankings of major apple suppliers. *The World Apple Report* 1:6.

THE WORLD APPLE REPORT (2000). EU apple forecast per variety: 1999 and 2000. *The World Apple Report* 2:5.

WARNER G (2002). *Have US apple and pear exports peaked?* Good Fruit Grower, Washington.

WILLEMSE J (2002). Amerika verdubbel subsidies aan sy boere. *Landbouweekblad*, 12 Junie. Kaapstad.

Appendix A: Apples: Tree census by district

District	No of trees	Area (ha)
Berg River	132,669	117.06
Ceres	5,260,035	5,361.20
Franschhoek	55,742	48.85
Groenland	7,772,779	8,023.03
Hexvallei	187,836	174.37
CapeTown	88,837	72.94
Little Karoo	398,025	543.55
Langkloof Wes/West	487,068	530.82
Piketberg	421,900	414.82
Somerset West	208,450	156.96
Stellenbosch	58,620	49.01
Southern Cape	222,129	172.43
Villiersdorp / Vyeboom	2,901,881	3,075.97
Wolseley / Tulbagh	147,584	138.60
Total Western Cape	**18,343,555**	**18,879.51**
Northern Province`	55,870	40.47
Gauteng	1,869	1.85
Eastern Cape / Oos Kaap	23,994	52.05
Lankloof Oos / East	3,054,279	3,874.78
Free State / Vrystaat	81,187	83.37
Mpumalanga	32,000	21.17
Total	**21,568,760**	**22,901.65**

Source: DFPT Tree Census/SADRIN (2000).

Appendix B: Apples: Competitive rankings of major world apple suppliers, 2000

Rank	Overall	Production Efficiency	Infrastructure & Inputs	Financial & Markets
1	New Zealand	Austria	Chile	New Zealand
2	Chile	New Zealand	New Zealand	Belgium
3	Netherlands	Netherlands	US	Netherlands
4	France	Chile	Argentine	France
6	Belgium	France	South Africa	Chile
7	Austria	Brazil	France	US
8	South Africa	Belgium	Australia	Argentina
9	Argentina	Poland	Turkey	Australia
10	Japan	Japan	Brazil	Italy
11	Australia	Germany	Germany	Canada
12	Canada	Australia	Belgium	Germany
13	Germany	Italy	Italy	UK
14	Italy	US	Austria	South Africa
15	Brazil	Turkey	Japan	Austria
16	Spain	Argentina	Netherlands	Spain
17	UK	China	UK	Brazil
18	Turkey	Russian Fed.	Spain	Greece
19	Greece	Canada	Greece	China
20	Poland	Yugoslavia	Mexico	Mexico
21	China	Greece	Poland	Hungary
22	Mexico	Spain	China	Poland
23	Hungary	Mexico	Hungary	Turkey
24	Bulgaria	Hungary	Yugoslavia	Bulgaria
25	Russian Fed.	Romania	Bulgaria	Russian fed.
26	Yugoslavia	UK	Russian Fed.	Romania
27	Romania	Bulgaria	Romania	Yugoslavia

Source: World Apple Report, 2000.

Appendix C: EU apple forecast per variety, 1999 and 2000

Variety	1999	2000	2001/1999	2001/Med 95/99
Golden Delicious	2,949,647	2,841,555	-4%	1%
Red Delicious	858,132	8,458	-1%	6%
Jonagold	994,451	921,680	-7%	-16%
Granny Smith	425,872	386,677	10%	-7%
Elstar	425,872	386,677	-95%	10%
Cox Orange	202,100	143,200	-29%	-23%
Royal Gala	560,860	635,457	13%	62%
Morgenduft	158,208	1,527	-3%	-18%
Gloster	113,008	94,457	-16%	-29%
Boscoop	196,704	171,039	-13%	0.14%
Idared	138,234	135,291	-2%	2%
Bramley	116,600	85,000	-27%	-19%
Renette	105,705	115,637	9%	5%
Annurca	79,500	82,200	3%	0.08%
Jonathan	5,768	3,287	-43%	-73%
Braeburn	174,078	204,593	18%	98%
Fuji	56,232	69,147	23%	119%
Other Summer varieties	132,276	13,704	-90%	-88%
Other Autumn/Winter varieties	707,674	656,303	-7%	-10%
TOTAL	**8,360,105**	**7,983,031**	**-5%**	**5%**

Source: The World Apple Report, 2000.