

Avocado Production in South Africa

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Introduction

Avocado production in South Africa is an export-orientated industry, aimed primarily at the European market.

The production is concentrated mainly in the warm subtropical areas of the Limpopo (Northern) and Mpumalanga provinces, in the North East of the country and to a lesser extent the Kwa-Zulu Natal province where the conditions are cooler due to the more southerly latitude. The region is characterized by warm, wet summers and cool dry winters. Annual rainfall in most of these areas is high (> 1,000 mm per annum), but there are some orchards in semi arid regions with rainfall of ± 400 mm per annum.

Due to climatic variability between growing regions, most of the major cultivars are available over an extended period. These different regions give the industry the ability to produce avocados from the end of February to the beginning of November, with the bulk of the crop from the end of March until beginning of September.

The area planted to avocados in South Africa has expanded steadily over the past 30 years, from $\pm 2,000$ hectares (ha) in 1970 to $\pm 12,500$ in 2002.

Organisation of the industry

Unlike the deciduous and citrus industries in South Africa, marketing of avocados has never been subject to statutory control.

The South African Avocado Growers Association (S AAGA) was formed in the late 1960's. The mission of SAAGA is to improve the economic viability of producing, packing and marketing of avocados.

SAAGA has a membership of about 500 growers, accounting

for $\pm 85\%$ of avocado production in South Africa. The major avocado export companies are also members of the Association. The activities of the association are fully funded by its members.

The objectives of SAAGA are :

- To give technical support for avocado growers.
- To provide and maintain a Quality Assurance Programme for the Industry.
- To collect, collate and distribute information concerning the production and marketing of avocados.

- To co-ordinate research concerning production and market development for avocados.
- To make recommendations for the necessary quality requirements and application thereof in conjunction with the relevant state bodies and other authorities.
- To increase the demand of avocados locally and overseas.

Priorities in the industry

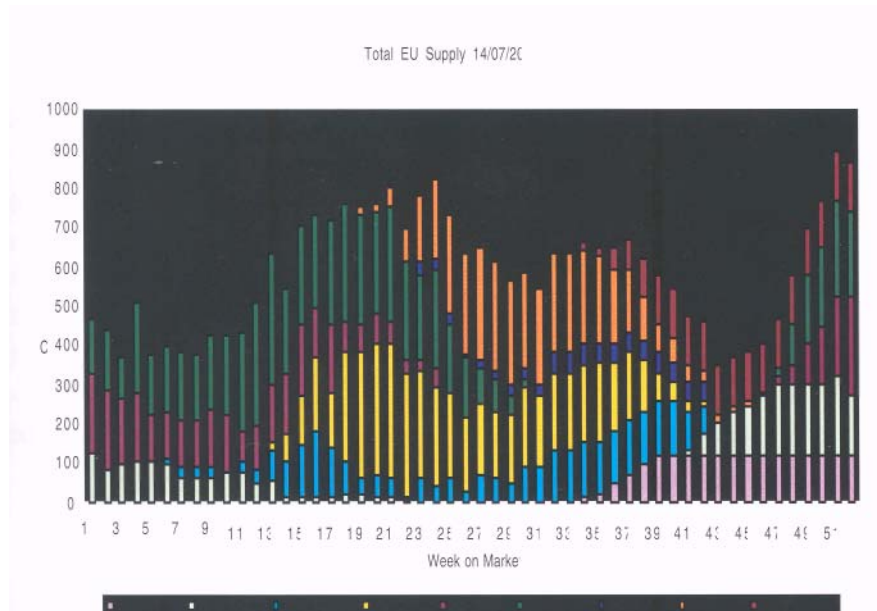
Food Safety

Food safety has become more prominent in Europe and especially the U.K. The Europe Produce Working Group (EUREP) has drawn up protocols for Good Agricultural Practice (GAP) to boost consumer confidence in fresh produce.

SAAGA is assisting avocado growers in implementing Eurep-Gap, as well as quality assurance systems such as ISO 9002 and HACCP, amongst avocado packers. As a part of GAP, there is a strong emphasis to limit the use of agricultural chemicals by employing cultural practices that encourage natural enemies and antagonists of pests and diseases in avocado orchards.

Volume management

South African avocado growers lost money over a number of years because of the inability to balance supply and demand and thereby sustain prices at an acceptable level. Volume management out of South Africa is of vital importance. Sharing of information with Israel and more recently with Kenya and some Spanish exporters is the first step towards a total volume management process.

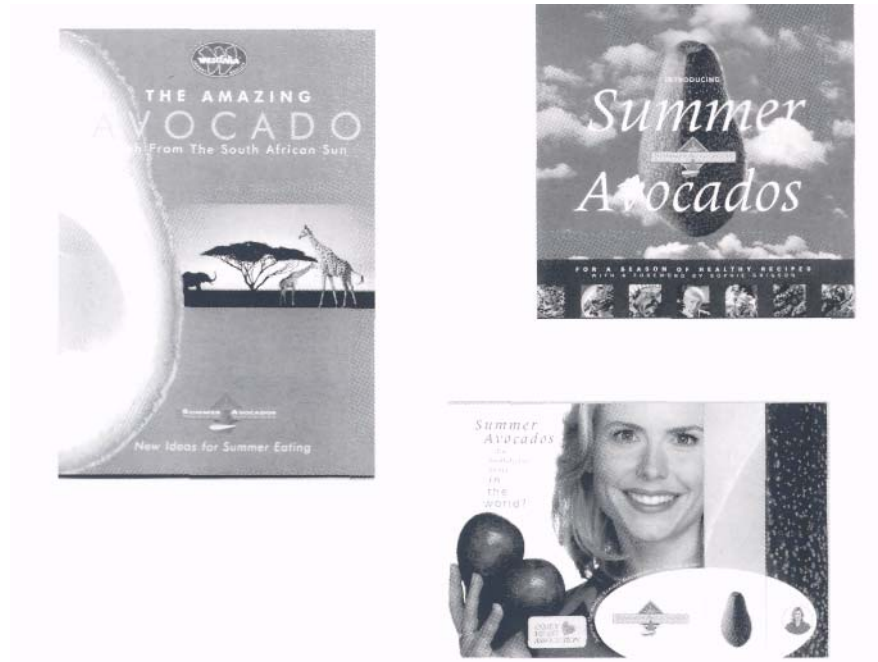


Predicted volumes of avocado supply to the European market — Hass and Greenskin for 2002 avocado season

Market development

In the United Kingdom, SAAGA is involved in a market development programme. The programme centred around cost effective exposure in the media with the emphasis on educating the public in the unique properties of the avocado (especially in the health arena), its versatility and new and existing ways to use it. The programme started in 1997 with the theme "Summer avocado's from the South African Sun" followed by "The amazing avocado Fresh from the South African Sun" in 2002.

The objective was to double avocado consumption during the U.K. summer months within 5 years. This objective was achieved.



Current trends in the industry

Cultivars

Hass (33%) and Fuerte (42%) are the major cultivars, along with the Ryan (11%) and Pinkerton (8.5%) varieties.

Due to the European markets preference for Hass, more Hass has been planted in recent years. This is the trend for new orchards as well, as older Fuerte orchards are in the process of being phased out.

Because of consistently high yields, Pinkerton is popular amongst certain avocado growers. Sensitivity of Pinkerton to cold storage is a problem. Intensive research is currently being carried out to address this problem.

Root rot control

High summer rainfall (>1,000 mm per annum in most areas), and warm temperatures contribute to the high incidence of root rot caused by *Phytophthora cinnamomi*. The disease is effectively controlled through phosphorous acid trunk injections. This control method was developed during the early 1970's and implemented on a commercial scale

since the late 1970's. An integrated *Phytophthora* control procedure will include practices that promote root health, such as the addition of organic matter to the soil and mulching. Irrigation management is also important in this integrated approach.

The majority of plantings since the early 1980's have been on *Phytophthora-tolerant* rootstocks the most important being Duke 7. This rootstock, developed in California, played a major role in the integrated approach to *Phytophthora* control in the South African industry.

A number of locally selected *Phytophthora-tolerant* rootstocks are currently being tested. Merensky II is an exciting new rootstock out of this programme and has also been tested, with positive results, in the rootstock programme of the University California Riverside under Prof. Menge. This rootstock is being planted in new commercial plantings and can bring a new dimension to avocado productivity in South Africa.



*Dr. Stefan Köhne
and Erica Faber
with a Hass tree on
the Merensky II
rootstock.*

Growth manipulation

Pruning to maintain tree size and prevent inter tree shading is now being practised by many growers. This practise might limit the alternate bearing pattern of avocados and prevent the "small fruit" problem of older Hass trees. Where topography permits, pruning operations, as well as spraying, are also being mechanised. Tree nutrition is also receiving attention as an integral part of maintaining a viable productive canopy.



Canopy management in a pruned Hass orchard.

Post Harvest Management

The majority of avocados are exported by sea in integral refrigerated containers. Because it takes fruit about 25 days from packing to reach the European retailer, strict control of all links in the cold chain is vital to maintain high standards of fruit quality. The sea voyage to Europe takes 14 -16 days. Fruit exported by sea is packed and cooled in the production regions and transported to Cape Town in refrigerated trucks (1,800km) where it is containerized before being loaded onto the ship. A temperature management system was implemented in 1989. The cultivar exported and fruit maturity play an important role in determining the temperature regime at a specific stage during the season. Strict protocols in managing the cold chain, controls throughout the system, and effective communication form the basis of this temperature management system. Evaluation and feedback by SAAGA's overseas technical officer to the temperature committee in South Africa on a week to week basis is an essential part of the process. Shipping under controlled atmosphere (CA) is common, due to superior maintenance of fruit quality, compared to regular atmosphere.

A train from the production area (Tzaneen Limpopo Province) to Cape Town with integral CA containers, provided a new dimension a door to door service in supply chain management.

The management of fruit age is another critical aspect in this effort to supply the European market with quality product. SAAGA plays a very important role in the liaison process with all the different role players in the logistical chain.

Quality standards for export are determined by SAAGA in association with the National Department of Agriculture. Quality standards include factors such as fruit maturity, size, and blemish levels. The Perishable Export Control Board (PPECB), a parastatal organization, is responsible for quality inspections on a consignment basis prior to shipping. The PPECB also ensures that the standards for refrigerated road transport and refrigerated containers are met.

Industry growth Exports

Since 1973, South African avocado exports have shown a fairly linear growth trend (Fig.

1). On a year to year basis, however, the effect of alternate bearing cycles is evident. Adverse weather conditions such a drought or excessive rain has also had an effect on the size of the export crop. The industry is aware that a reduction in severity in the alternate bearing phenomenon will be of great benefit. Consequently, much attention is given to orchard practices such as pruning and fertilization to address this issue.

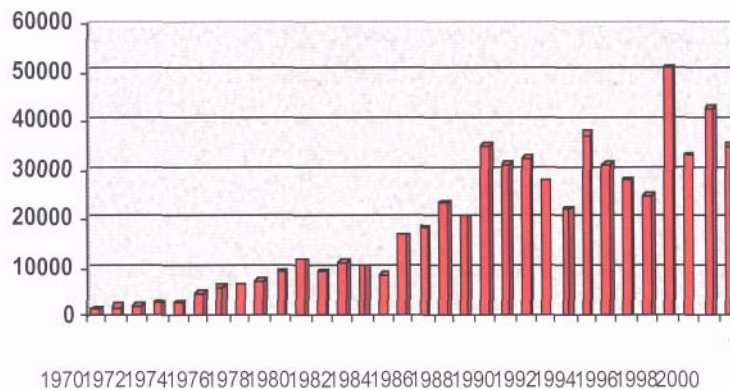
It is estimated that approximately 55% of the total avocado crop is exported.

Local Market

In the past, most of the avocados sold in South Africa were sold on the National Fresh Produce Markets. In recent years, however, sales to the informal sector direct from packhouses, have increased steadily. Statistics on sales to this informal sector are not readily available making it difficult to estimate total production.

Another recent trend in local marketing is direct supply to supermarket chains from the packhouses.

Fig. 1 South African avocado export volumes 1970 - 2002



Avocado Processing

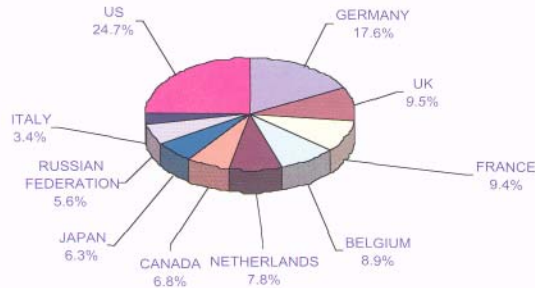
The processing of avocado puree (Guacamole) and in recent years oil, has experienced significant growth. Although it was from a very low basis, this growth will have a positive impact on pricing structures for avocados in South Africa. It creates alternative market options for avocado growers and can play a role in ensuring that export shipments from South Africa are based on market demand.

The Commercial Environment

Europe and the UK are responsible for 57% of fruit imports in the international fruit trade.

Avocado exports from South Africa are dependent on the European market.

Growers export their fruit through 14 (fourteen) exporting companies that operated on a commission basis. Eighty percent of the export volumes are handled by 7 of the above-mentioned companies.



WORLD AVOCADO IMPORT TRADE (Tonnes)

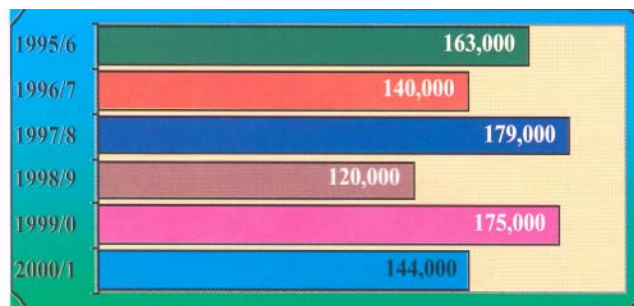
MARKET	VOLUME	MAIN SUPPLIERS
EU	160.000	South Africa, Kenya, Spain, Mexico, Israel, Chile, US, Peru
US	45.000	Mexico, Chile, Dominican Republic, New Zealand
Japan	7.000	Mexico, US

Characteristics of the European fruit trade

Commercial environment

- World wide over production of fresh fruit
- Supplier power has been diluted
- Buying power has been concentrated. Retail requirements
- Continuity of supply of quality products
- Foods safety legislation / due diligence / supply chain integrity (traceability)
- Category management Food consumption patterns
- Convenience
- Diversion of choice

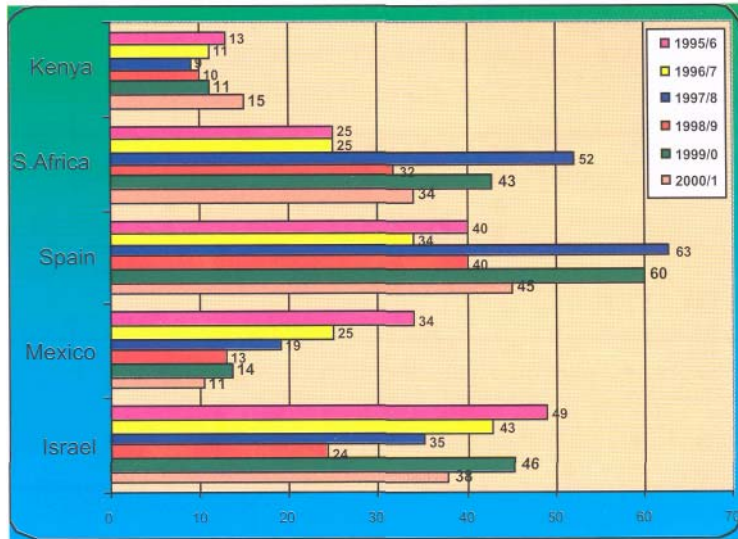
AVOCADOS IN EUROPE – total quantities



Inconsistent supply creates a situation where the market is under pressure and difficult

to develop every second year.

AVOCADO SUPPLIES IN EUROPE (1000 Tonnes)



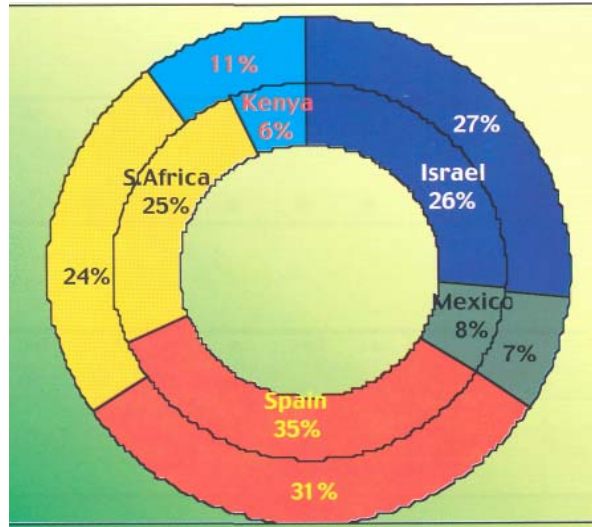
Spain, Israel and South Africa are the major role players in the European market. Kenya, being a small role player, is growing, and Mexico volumes have dropped significantly.

Suppliers Breakdown

Inner ring:
2000-2001

Outer ring:
1999-2000

Information from: G.
Naanami Agrexco



South Africa's Fuerte crop overlaps with Spain's Hass crop, which causes market problems for South Africa as the tendency of the produce market is to favor the Hass variety. Fuerte is then under pressure in the French and UK markets. These two markets absorb the larger volumes of avocados produced in South Africa.

Peru is becoming a more important supplier of avocados in the European market during the South African season.

Seasonal Spread of Countries Supplying Europe

SPAIN

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Fuerte				●	●	●	●					
Pinkerton				●	●	●	●	●	●	●		
Hass				●	●	●	●	●	●	●	●	●

Hass represents about 80% of Spanish avocado volume.

SOUTH AFRICA

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Fuerte								●	●	●	●	●
Pinkerton											●	●
Hass	●	●								●	●	●
Ryan	●	●	●									●

ISRAEL

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Fuerte			●	●	●	●						
Pinkerton						●	●					
Hass					●	●	●	●	●			
Ettinger			●	●	●							
Ardith												

MEXICO

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Fuerte												
Pinkerton												
Hass		●	●	●	●	●	●	●				

KENYA

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Fuerte							●	●	●	●	●	●
Pinkerton												
Hass												
Ryan												

SUMMARY

The South African industry accepted the challenges for the future and will adopt to market conditions to be recognised as an important supplier of avocados during the South African season.