



REPUBLIC OF MOZAMBIQUE

## External Market Task Force

### External Market Study No. 3 (2)

#### **ANNEX 2 TO THE STUDY ON THE EXPORT MARKETING PROSPECTS OF SIX SELECTED MOZAMBIKAN COMMODITIES FOR THE SOUTH AFRICAN MARKET**

## REPORT ON BANANAS

This product report forms part of an overall report and should be read in conjunction with the Main Report that covers general items regarding all six products and the market evaluation. Also, these reports make suggestions based on certain assumptions and market conditions. Conclusions are derived from interviews and experience collected from a variety of sources. Although all the information recorded has been collected from reputable sources and in good faith, the External Market Task Force cannot be held responsible for the accuracy or the lack of success in marketing any of the researched products.

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**Maputo**

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## **Analysis of Banana Production in Mozambique as a target product for the development and export in particular to South Africa**

### **1. Introduction**

Banana is the most consumed fruit in the world, and in Mozambique as with other banana producing countries, bananas constitute part of the staple diet of families. It is also an important part of the income of smallholder farming families living in the rural areas. In general it is cropped in small sized farms, either around the house, in low-lying areas, or on the beds and sides of non-permanent water streams. Besides that, and because of its capacity of producing bunches throughout the year, it is an important component of the food security strategies of rural families.

In respect of international trade, bananas are responsible for the largest volume of marketed fresh fruit, about USD5.0 billion each year. The largest producers are India, Ecuador, Brazil and Philippines, while Ecuador, Costa Rica, Colombia and Philippines are the main exporters. Although Brazil and India are leading producers, they are of relative little importance in the international market, as most of their production is aimed at the domestic market.

The best quality bananas are produced between the tropics of Cancer and Capricorn, and generally the climatic conditions are more favourable closer to the equator.

Several factors influence banana growth and yield; these can be grouped into internal and external factors. **Internal factors** are related to the genetic characteristics of the cultivar, while the **external factors** refer to soil conditions, climate, pests, diseases, and crop management (including irrigation and fertilization).

Bananas are one of the most common fruit crops in Mozambique and can be regarded as one of the major sources of national food security. However, banana cultivation in Mozambique faces many problems, e.g. low level of technology usage, low yields and poor fruit quality, especially for the export market. However, this picture could easily be changed by the use of irrigation, available technology regarding cropping practices and post-harvest handling.

## 2. Mozambique Supply Analysis

### 2.1 Production

Mozambique's mild tropical climate results in growing conditions that are somewhat different from the rest of Southern Africa, which allows bananas to grow year round 52 weeks a year. The soil conditions in Mozambique are ideal for the cultivation of high quality, superior bananas. Banana is being cultivated almost everywhere in the country by smallholder farmers on small family plots, partly for home consumption and partly for sale locally or in nearby markets. Commercial cultivation occurs mainly along the coast in Maputo Province and in the highlands of the Province of Manica. It is also these two production areas where bananas are produced with the sole purpose of sending it to the two most important consumer markets in Mozambique – Maputo and Beira.

Before 1975, the Incomati River Valley was a very important banana production region with the farmers organized in an Exporters Cooperative located in Bobole, near Marracuene. This coop did collective procurement and purchase of inputs and organized collective exports. South Africa was at the time the most important market for the 20 000 to 25 000 tons of bananas exported annually. After independence, the banana production declined, with the reduction attributed to mismanagement of state farms and floods that killed large parts of the existing plantations in the South, while in Chimoio intense rainstorms periodically tend to damage the road network into the rural areas.

At present, no hard comprehensive data exists about the area cultivated, production and yields of bananas. Table 1 shows the annual production for the smallholder sector as reported by the Early Warning Department at MADER (DAPSA) in June 2003. Note some observers have indicated that these figures seem to be underestimated, probably related to the sampling method used for the estimates. For example, most of the banana production in Maputo and Manica Provinces are not accounted for in the smallholder production statistics. A more realistic production estimate was produced by Dixie (2000) estimating the total production of Maputo and Manica at around 88 000 MT (Manica - 35 000 MT and Maputo – 53 000 MT).

In Maputo province, bananas are produced in a region of about 2 500ha with farms usually ranging in size from 5 to 40 ha each on low lying alluvial soils, while in Manica individual farms vary from 1 to 20 ha each with a total arable area 11 000 hectares, mostly in small valleys between hills, and on hillsides. There are already about 25 000 *sector familiar* farmers who comply with conditions that produce an acceptable export crop, but post-harvest handling must be improved. The bulk of these farmers come from the Manica Province while the remainder are situated mostly in the Maputo Province.

**Table 1: Annual Production of Bananas in Mozambique**

Province	Production (ton)	Province	Production (ton)
Maputo	153	Tete	0
Gaza	3	Zambézia	132
Inhambane	887	Nampula	175
Manica	732	Cabo Delgado	324
Sofala	99	Niassa	na

Source: DAPSA, 2003

In most cases 2 cultivar varieties are being produced. These are:

- i. “*banana-maçã*,” which has a small fruit with good taste but spoils easily; therefore these are grown mainly for local consumption.
- ii. “*dwarf cavendish*” which is grown throughout the whole country is also the cultivar of choice when grown for trading purposes. (i.e. Cash crops)

Other cultivars, like the more recent improved varieties of “*Williams*” (hybrids), *Chinese cavendish* and *Gran naine* are being cultivated on a few farms near the *Pequenos Libombos Dam*.

## 2.2 Production Related Problems

Most banana producers in Mozambique do not apply intensive cropping techniques similar to that used in South Africa. Plant density is low with about 3-4 meters between rows and 3-4 meters between plants in the row. Very little pruning of the “suckers” is done leading to the ‘clumping’ of the banana plant with up to 8 “side-shoots” per plant. As a result the yield and quality of the banana plants is poor. This is exacerbated by sporadic crop cycling (ratooning) practices that increase the interim time between the harvesting periods from the same plantation. After the first ratooning, the rate of ratooning decreases drastically to about 0.75 bunches/hill/year, which negatively affects the yield. There is, however, indications that a few producers have already switched to better management practices, but to a limited extend.

Traditional non-intensive production practices have kept banana crops relatively disease free, thus requiring little crop spraying. However, it is also known that almost no fertilizer is used in the smallholder sector. As a result, yield is about 10 kg per bunch, whereas modern production practices yield a more acceptable 25-30 kg per bunch.

Post-harvest handling is usually poor but the flavour is still retained quite well. It should be noted though that Maputo vendors report better sales of imported bananas (limited amounts from South Africa) due to the better appearance of the banana.

## 2.3 Marketing

Although a very common crop nationally, the marketing of bananas is not structured into an organised system. The existing banana market is basically served in three different ways:

- i. Small itinerant traders purchase the fruit from producers and sell/retail them locally, or in nearby markets with easy road access.
- ii. In Manica Province, producers harvest the crop, and without specific processing, prepare piles of bananas alongside the roads waiting for buyers and trucks to transport them to Maputo or Beira.
- iii. Other farmers, many in Maputo Province (Marracuene, Palmeira and Boane), have their established buyers and often grow on contract to them. They normally have adequate harvesting and ripening facilities. Note that during investigations no special packaging was evident, but producers picked the bananas and placed them in 20kg crates which are then placed in the ripening warehouses.

According to observations by Mr Matias Mboa, President of APEB-Banana Producers and Exporters Association, they sell 8-10 tons of bananas per week in Maputo, this extrapolates into 400 or 500 tons per year. He estimates that at least 100 tons of bananas enter the Maputo area every week totalling to about 5300 tons a year. This is far in excess of the smallholder estimate from DAPSA (see Table 2).

Mr António Gomes, (2003), a banana producer from Boane, estimates the consumption capacity of Maputo is about 250 tons per month. He has three farms totalling 153 ha and they expect to harvest about 750 tons per month thus surpassing his estimate of the Maputo consumption.

**Table 2: Divergent Estimates of Maputo Banana Consumption/Production**

Source	Consumption/Production estimate per annum (MT)
DAPSA	153
APEB	5 000
Gomes, Antonio	3 000
Dixie, Graham	53 000

From the above interviews and research, (MADER (DAPSA), Graham Dixie, APEB-Banana Producers and António Gomes), it is clear that estimates of banana consumption in Mozambique and Maputo in particular, are very inconsistent. Taking all these estimates into account and interviewing Shoprite in Maputo, (they have their own contractual supplier) and other producers like Fruta Lebombas near Boane, it seems likely that Maputo consumption presently is in the region of not more than 150MT per month.

Although a couple of producers, especially in Maputo Province, are interested in exporting bananas, apparently no export has yet been done. Mr Matias Mboa, president of APEB (Banana Producers and Exporters Association) attempted an export to Cape Town, South Africa in 2000, but this failed because of local floods that nearly destroyed most of the plantations alongside the Incomáti River.

Generally, the flavour of Mozambican bananas is considered to be excellent. With a few basic improvements in production techniques and post-harvest practices, Mozambique has the potential to produce 'Grade 1' bananas at an economical cost and thus a higher export potential. The sourcing of inputs could however have a negative impact on competitiveness.

### 3. South African Market Analysis

#### 3.1 Production

Table 3 shows the production and gross value of production for bananas in South Africa. Bananas are mainly grown in the eastern parts of South Africa, namely the Limpopo Province (Tzaneen and Levubu), Mpumalanga (Nelspruit, Burgershall and Underburg) and the coastal areas of Kwazulu-Natal (areas along the North and South Coast). According to Dodds (2003), the production seasons of the Eastern and Coastal areas are starting to overlap, which could lead to larger volumes being offered on the market during periods where each production region previously supplied the market on its own. The result inevitably will be lower prices for the producer. Joubert (2003) is of the opinion that local production of bananas is sufficient to satisfy demand in South Africa (this is reinforced by the fact that imports of bananas over the past five years varied between 0.76 per cent and 1.05 per cent of total production).

**Table 3: Production and gross value of bananas in South Africa**

Year	Total production (Metric Tons)	Gross value (ZAR1 000)
1990	226 141	127 532 804
1991	238 893	150 308 152
1992	181 648	150 086 910
1993	133 571	117 283 434
1994	131 431	107 093 982
1995	134 982	121 357 705
1996	164 976	153 075 107
1997	205 940	188 582 051
1998 <sup>1)</sup>	313 489	307 508 279
1999 <sup>1)</sup>	360 806	332 600 876
2000 <sup>1)</sup>	348 022	336 710 820
2001 <sup>1)</sup>	381 431	368 376 219
2002 <sup>1)</sup>	332 752	407 092 690
2002/2003 <sup>1)</sup>	231 528	294 059 835

1 – Preliminary

Source: NDA, 2003

Occasional problems with capacity at ripening facilities do occur. Consignments may arrive at ripening rooms at the Fresh Produce Markets (FPMs) that are already full resulting in uneven ripening of fruit and quality deterioration. This could have a large impact on the price producers receive, e.g. Joubert (2003) mentions that prices could drop as much as 50 per cent due to quality defects.

Also important to note in terms of production is the following:

- Very low volumes of chemicals for pest and weed control are used in the production of South African bananas, i.e. it complies with the requirements of the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972) (Prinsloo, 2003a; Joubert, 2003).
- Sufficient access to water remains crucial, but is also very costly. The introduction of the new Water Law could severely hamper the profitable production of bananas. It was indicated that water is definitely more expensive currently than what it was in the past.

- The initial establishment cost<sup>1</sup> (excluding planting cost) of bananas amount to around R26 000 per hectare. Planting costs amount to approximately R17 000 per hectare. The aforementioned cost excludes investment in land.

### 3.2 Consumption

According to Prinsloo (2003a), almost all bananas produced in South Africa are consumed as fresh fruit (See Appendix A for specifications and Section 3.3. for further discussion). There are small quantities of bananas dried and processed to juice. The juice is used as a supplement for mango shortages in fruit juice mixes. Value-adding to bananas mainly take the form of pre-packing into smaller plastic bags or boxes. As mentioned domestic consumption basically equates to domestic production with very little bananas being imported, mainly from Zimbabwe (note Zimbabwe is regarded as a lower cost producer than South Africa).

### 3.3 Marketing

After harvesting the bananas is washed and sorted to remove any bananas with defects, after which it is graded according to size, i.e. extra large, large and medium, before it is packed in 20kg boxes<sup>2</sup>. There are no formal regulations currently in place for the packaging and labelling of bananas.

The bananas are then cooled to 14°C before it is transhipped to the market in cooler trucks. Only a few producers make use of own transport and hence transport contractors are mainly used. The bananas are preferably unloaded the same day of departure at the FPM and stored in ripening rooms. After approximately a week in the ripening rooms the bananas are offered for sales on the market.

Almost 65 per cent of the bananas produced in South Africa are sold on the FPM's. Direct sales to retailers account for approximately 15 per cent of total domestic production. Cognisance should, however, be taken of the fact that retailers mainly purchase bananas at the FPM's. The remaining bananas are sold to hawkers. Table 4 shows the distribution of bananas from 1999 to 2002.

**Table 4: Sales Distribution of Bananas**

Selling point	1999	2000	2001	2002
	Percentage			
Fresh Produce Markets	65	69.8	68.5	65
Retailers*	19	14.7	15.3	15
Hawkers*	16	15.5	16.2	20
Total	100	100	100	100

\* - Direct sales

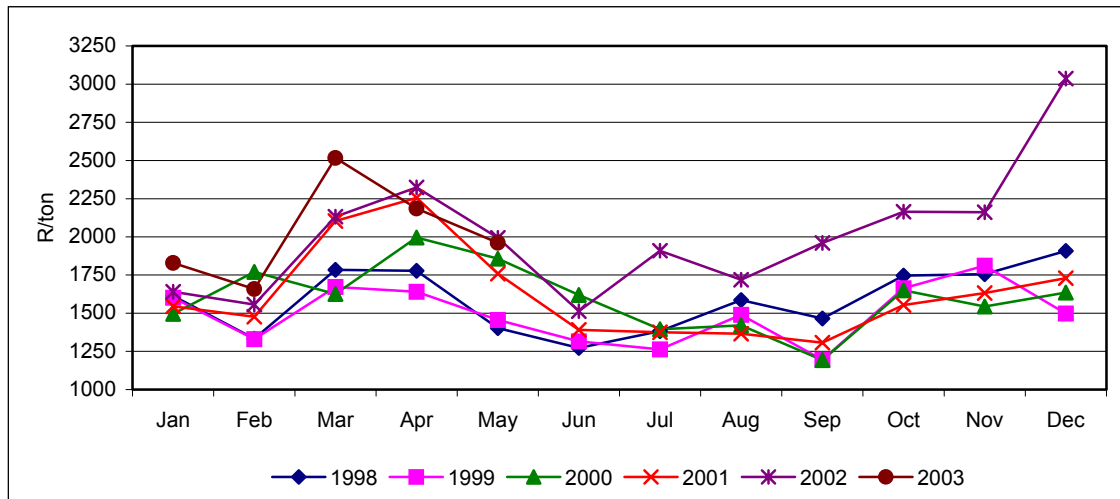
Source: Joubert, 2002

Figure 1 shows the price per ton realized on a monthly basis since 1998. It is clear that prices usually reach a high during March to May after which prices drop, moves sideways up to

<sup>1</sup> Costs refer to a new commercial banana block in which a permanent microsprinkler irrigation system is installed. The costs relate to optimum management of Williams or Grand Nain bananas at a density of 1900 plants per hectare.

<sup>2</sup> The boxes are made from carton and treated with a wax layer to ensure that the box does not collapse when wet. It also makes the box stronger to be stacked on a pallet. The producer's brand name, the size and weight are already printed on the box.

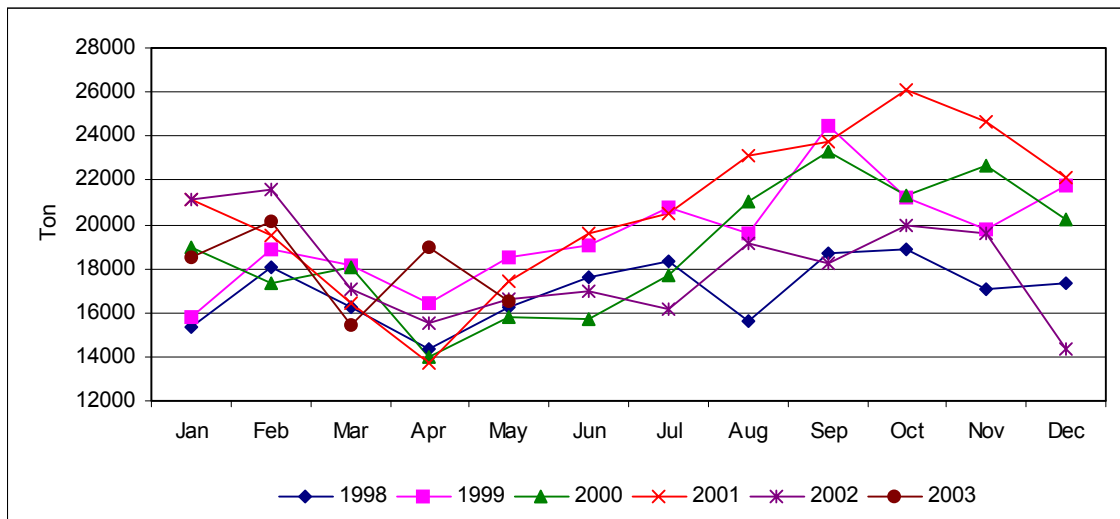
September, and increases again gradually towards December and January to drop again in February. According to Joubert (2002), prices received on the FPM's yields approximately the same farm gate price than bananas sold directly to hawkers. Direct sales to retailers yield a slightly higher price mainly due to the fact that producers make use of re-usable crates that are rented. A premium is also paid for higher quality bananas.



**Figure 1: Price per ton of bananas sold on South African fresh produce markets**

Note: 2003 figures only used until May.  
Source: NDA, 2003

Figure 2 shows the volume of bananas sold on the FPM's. The average volume sold per month is 18 854 tons with a standard deviation of 1 905 tons.



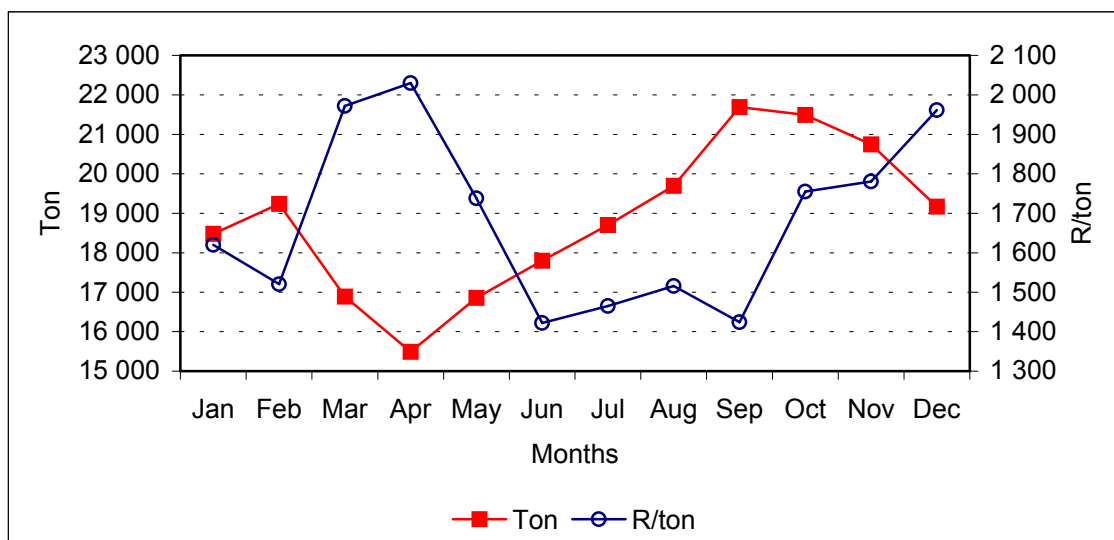
**Figure 2: Total volume of bananas sold on South African fresh produce markets**

Note: 2003 figures only used until May.  
Source: NDA, 2003

Figure 3 shows average monthly volumes sold and average monthly prices per ton over the last 6 years. It is clear that there is a high degree of price sensitivity to changes in the quantity supplied – more exact quantification of this relation will require regression analysis that falls beyond the

scope of this study. Note should also be taken of the fact that the prices and quantities depicted are averages over six years and hence one could expect more price volatility in day to day transactions.

Furthermore, Figure 3 shows clear marketing windows. For example, producers marketing their produce during March, April, November and December receive much higher prices than bananas sold from June to September. The challenge in this regard is to sequence production in such a manner to take advantage of the depicted marketing windows.



**Figure 3: Average tons sold and R/ton (1998 – 2003)**

Standard Deviation: R221.62

Note: 2003 figures only used until May.

Source: NDA, 2003

Table 5 shows the cost to market a 20kg box of bananas in 2002. This cost amounted to approximately R20.39 (USD2.80<sup>3</sup>), excluding the production cost of bananas. Bananas have a production cost<sup>4</sup> of approximately R7.86 per 20kg carton in South Africa. Marketing and production cost for 2002 then equates to around R1.41/kg, which means that a farmer had a margin of about R0.60/kg. Given the fact that most commodities have experiences exceptionally high prices in 2002, including bananas, this is not a comfortable margin.

**Table 5: Average marketing costs of bananas in 2002 (Johannesburg FPM)**

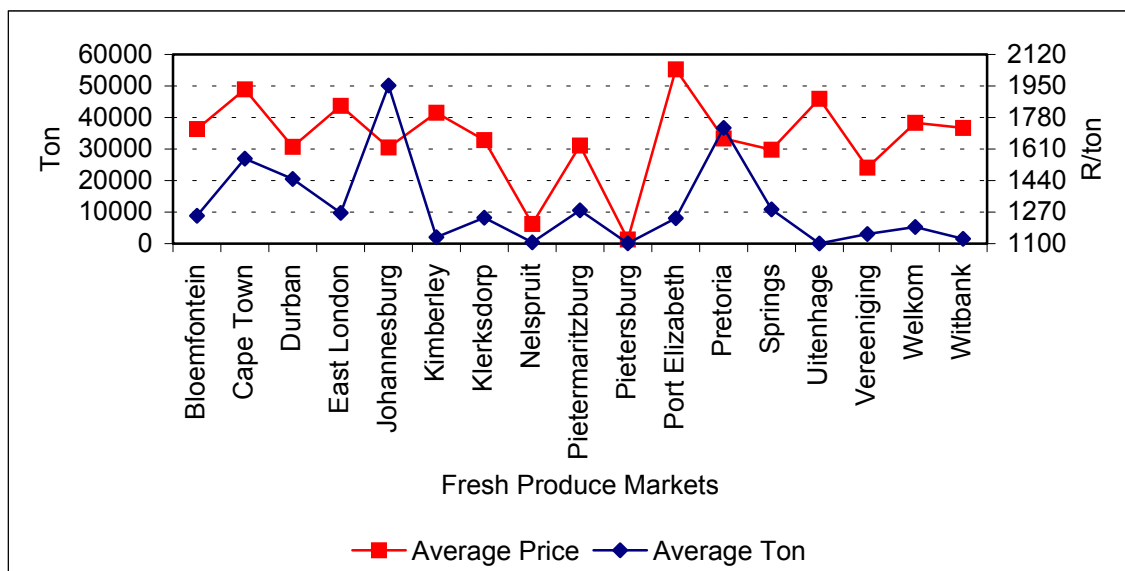
Marketing cost item	Cost per 20kg box
Box	R7.80
Transport to Johannesburg	R7.15
Ripening cost	R1.00
Market commission (12.5% of gross selling price)	R4.12
Pallet cost	R0.32
<b>TOTAL</b>	<b>R20.39</b>

Source: Robinson and Joubert, 2002

<sup>3</sup> For the purposes of this report, the average exchange rate for the period, 01 October 2003 to 31 December 2003 taken from the official South African Customs and Excise published rates, i.e. **USD1.00 = ZAR6.500**

<sup>4</sup> According to Robinson and Joubert (2002) production cost per hectare in the first ratoon amounts to approximately R17 700 per ha. The yield in the first ratoon is assumed to be 45tons per ha, i.e. 2 250 boxes weighing 20kg's.

Figure 4 shows average volumes sold and average prices per ton for the last 6 years on the various different FPM's in South Africa. It is depicted that in terms of average volumes sold the Johannesburg is the largest followed by Pretoria, Cape Town and Durban. These four markets represent on average 66 per cent of the total volume of bananas sold during the last 6 years.



**Figure 4: Average tons sold and R/ton per market (1998 – 2003)**

Note: 2003 figures only used until May.

Source: NDA, 2003.

According to Dodds (2003), the Pretoria FPM showed growth of 16 per cent during 2002/03 (June to July) in respect of the quantity of bananas sold and currently have the capacity to ripen 68 000 boxes of bananas in a normal 7 to 9 day cycle. The bananas have a further shelf live of 8 days from the time of leaving the ripening rooms until final consumption. However, it should be noted that this is only achievable if the bananas were initially of a very high quality and were handled with care throughout the supply chain.

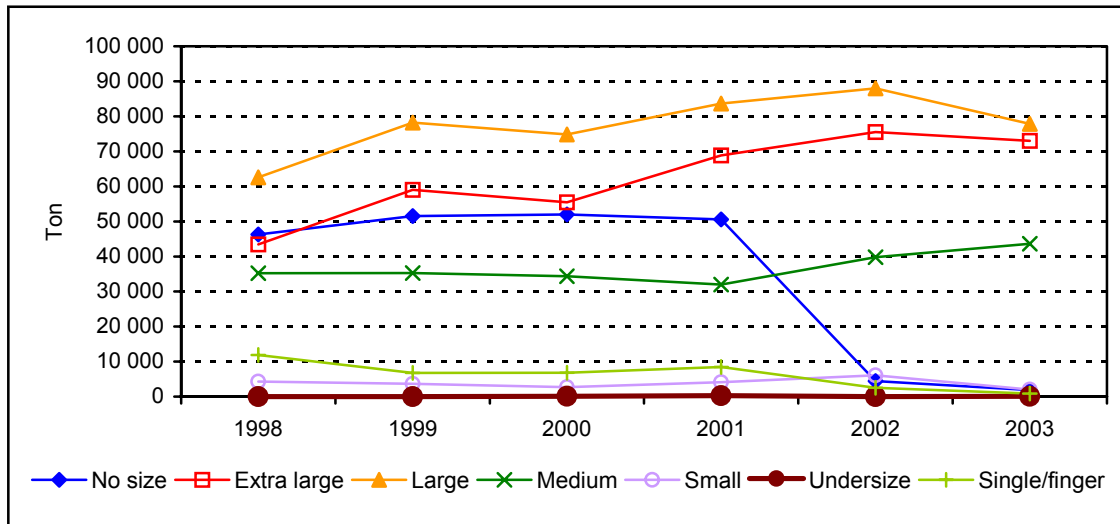
**Banana characteristics in South Africa:** The most general used varieties of bananas planted in South Africa are Williams and Gran Nain. The Williams banana is a very long fruit and the Gran Nain is smaller. Figure 5 shows the total quantity sold on the FPM's in terms of the various size categories since 1998 to 2003. However, cognizance should be taken that the market agents was under no obligation to capture daily sales with the correct coding until two years ago. The markets also did not use the same coding and categories. Fortunately, this situation is in the process of rectification to ensure standardization the coding system. As indicated this process only started to take shape during the last two years.

With the aforementioned in mind it is evident from Figure 5 that the standardization process, and subsequent changes to the coding system, is showing some results in that the quantity of bananas with no size classification decreased drastically during 2002 and 2003.

Figure 5 shows that South African producers and consumers prefer to produce and use large and extra large bananas, with an increase in the quantity of medium bananas sold during the last two years. This is said with the abovementioned problems kept in mind. Due to the fact that no other

clear indication could be found on the preferences of the South African market it was thought that the comparison of the various sizes might provide an indication, with limitations.

Another conclusion from the depicted data is that bananas must be kept in what is called a hand and not loose single fruit. There was a decrease in the sales of single/finger bananas since 2001.

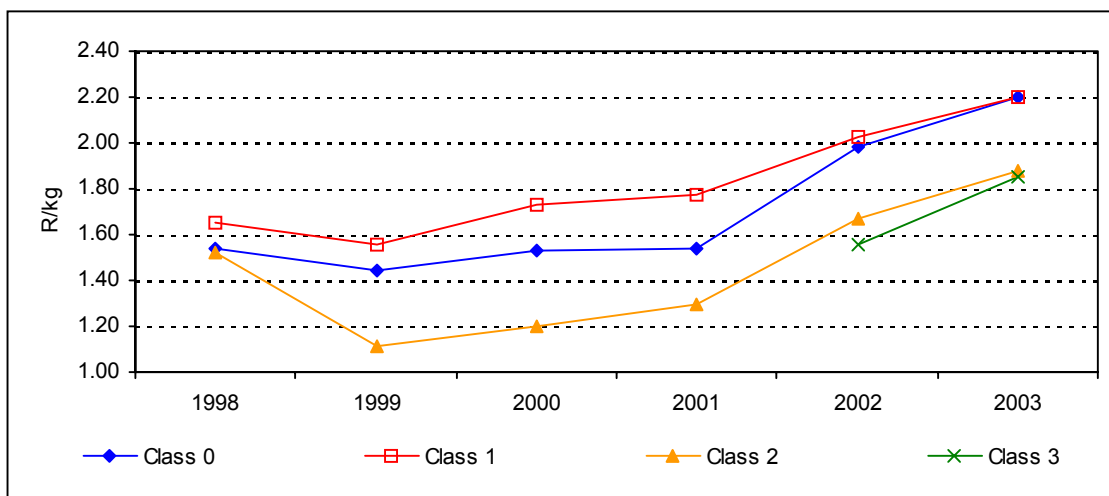


**Figure 5: Total tons of bananas sold on all the FPM's in terms of size (1998 to 2003)**

Source: NDA, 2004

See Appendix A for classification criteria

Figure 6 shows the difference between the prices realized for the different classes of bananas sold on the FPM's during 1998 to 2003. Take note that the same problem as described for recording the size of bananas existed. The data for the Class 0 sales thus represents sales of bananas that were either not captured according to class or captured as a very low class. Seen that the price is higher than the Class 2 it seems logical to conclude that it was not captured according to the correct class.



**Figure 6: Prices realized on the FPM's for different classes (1998 to 2003)**

Source: NDA, 2004

Appendix G shows the classification criteria under Codex. The SA system is similar except for the specific Class no.

**Packaging:** The market requires that bananas are packed, classed and labelled when delivered to the market. The box must have the necessary holes for ventilation of air in the ripening rooms. The consignments are sampled by inspectors of the local authorities and the Perishable Product Export Control Board (PPECB) to ensure that the product complies to the grading as indicated on the box. When the sampled product is below the required standards, under the weight indicated or premature the consignment is sent back to the supplier/producer or are down graded and sold as the lowest grade. If downgraded, the boxes are marked with a red stamp indicating lowest grade, which is then sold at considerable price discounts. If the consignment is sent back to the supplier/producer it is for his/her own account.

Dodds (2003) also echoes the fact that prices are very sensitive to over supply situations. In this regard he suggests that suppliers/producers have good communication with agents and market authorities to ensure a stable supply of bananas to the respective FPM's. This is indicative that the marketing decisions pertaining to bananas should already be discounted into the planting decisions.

Freshmark is the distribution chain of fresh produce to the Shoprite, Hyperama and Checkers retail group. There are currently six branches throughout South Africa.

– **The Centurion Branch:**

This branch supplies fresh produce to approximately 150 shops of the mentioned retail group. According to Waterboer (2003), who is the responsible buyer of bananas for the branch, they buy in the order of 133 tons per week of which 114 tons are directly from producers and the difference from the Pretoria and Johannesburg FPM's. This branch of Freshmark uses the services of a third party to procure the produce from producers. The bananas are obtained green and ripened in Freshmark's ripening facilities. They have nine ripening rooms with the capacity to handle 30 pallets of 45 boxes or 40 crates each. Most of the producers make use of the crates that are the property of Freshmark. This practice, as mentioned, lowers the cost of marketing for the producer. The fact that this branch of Freshmark mainly procures X-large and large bananas is indicative of the preferences of consumers in the Gauteng Province. They require that the bananas are free of any marks and each consignment are inspected by Freshmark inspectors for any deviations from the set standards. When a consignment is rejected the producer is contacted for an indication whether he/she wants the consignment to be returned or sold on the FPM. Approved consignments are pre-packed before distribution to retailers.

– **The Pietersburg branch**

According to Claussen (2003), who is the responsible buyer of bananas for this branch, they buy in the order of 1 200 to 1 400 crates per week; all are directly from producers in the area. The crates take 19kg of bananas, and with an average of 1 300 crates, it amounts to 24.7 tons per week. The bananas are packed green and ripened at Freshmark's own facilities. They do not receive any bananas in boxes from the producer.

– **The Port Elizabeth branch:**

According to Stock (2003), who is the responsible buyer of bananas for this branch, he buys in the order of 3 000 to 4 500 boxes per week directly from producers through a third party. The boxes take 19kg of bananas, and with an average of 3 750 boxes, it amounts to 71.2 tons per week.

– **The Bloemfontein branch:**

According to Smith (2003), who is the responsible buyer of bananas for this branch, he buys in the order of 25 to 30 tons per week directly from producers through a third party.

- **The Durban branch:**  
According to Taylor (2003), who is the responsible buyer of bananas for this branch, he buys in the order of 3 500 crates per week directly from producers through the third party. At 19kg per box and an average of 3 500 crates it amounts 66.5 tons per week.
- **The Cape Town branch:**  
According to Muller (2003), who is the responsible buyer of bananas for the branch in Cape Town he buys in the order of 4 000 crates per week directly from producers through the third party. At 19kg per box and an average of 4 000 crates it amounts to 76.0 tons per week.

In the case where producers market bananas directly to retailers it is imperative that continuity is maintained. This usually leads to higher marketing cost due to more detailed logistical arrangements and coordination. However, a premium may be paid by retailers that could more than compensate farmers for the higher marketing costs. The retailer, Woolworths, do pay premium prices to producers for very high quality bananas, but it also involves much more responsibility on the producer's side to ensure that they comply with Woolworths standards.

According to Borslap (2003), the Woolworths retail group buys approximately 100 tons per week for distribution in 125 different shops. They have agreements with various producers for the supply of the bananas, but do not sign contracts with the producers. They supply producers with a growing program to sequence supply to their different outlets. Prices paid to producers are determined, amongst others, by price comparisons in the retail sector and not the fresh produce markets alone.

Woolworths require from producers from whom they procure bananas to have the necessary ripening and packing facilities to handle the crop. The producer is responsible for the ripening and pre-packing of the bananas, and to deliver it to the depot in Johannesburg. The producer stays responsible for the quality of the produce until the sell by date is reached. With any deterioration in quality, the product is removed from the shelves and any losses are for the producer. Transport cost is also for the producer's account. It was indicated that Woolworths may be interested in future negotiations for the procurement of bananas from Mocambique.

According to Maartens (2004), bananas are a fruit that can be dried without a lot of problems. The fruit must be sweet and definitely not over ripe or damaged by bruising. All the damaged spots must be removed to ensure the quality of the end product. The fruit is sometimes cut into slices along the length but the best way is to split it on the natural three-way split. Before drying, all the pieces must be equally preserved through dipping to prevent the banana to turn black.

Furthermore, she stated that the Agri Driers Trust, an umbrella organization for the fruit driers and other role-players, present workshops and other forms of training to potential driers and indicated that they would be interested in being involved with future co-operation.

### 3.4 Imports and regulations

Table 6 shows the imports of bananas to South Africa over the last five years. The main import origins for bananas imported into South Africa is Zimbabwe, Phillipines and Ecuador. The average FOB/FCA prices recorded for these countries were R0.61/kg, R7.00/kg and R29.61/kg,

respectively<sup>5</sup>. Clearly Zimbabwe has a competitive advantage over the other two mentioned countries. The average FOB/FCA price for all countries was R1.21/kg. Unfortunately no information is available that provides insight into the quality of the imported bananas, but by comparing information depicted in Figures 1 and 6 South African bananas received higher prices on the FPM's than the average FOB/FCA prices. However, it appears that the average CIF/DDP price are probably similar or higher than the FPM prices given the fact that imports over the past five years varied between 0.76 per cent and 1.05 per cent of total production.

**Table 6: Imports of fresh bananas to South Africa (HS Code: 0803.00.00)**

Country of Origin	1998		1999		2000		2001		2002	
	kg	R	kg	R	kg	R	kg	R	kg	R
Argentina	35789	107082	0	0	0	0	0	0	0	0
Ivory Coast	525	478	100	157	0	0	0	0	0	0
Cameroon	148	278	0	0	0	0	25	222	738	584
Ecuador	10496	205219	10496	248834	0	0	14200	484136	25000	1027414
United Kingdom	45806	822694	21176	508876	31965	997453	6000	194872	544	5173
Ghana	232	787	1938	7051	302	888	52	153	36	109
India	67667	209525	0	0	17351	57395	0	0	0	0
Nigeria	0	0	0	0	0	0	15	42	0	0
Netherlands	0	0	960	17917	2078	19918	587	19838	500	15039
Philippines	25003	139093	51598	374357	67610	424766	77846	515086	54614	508718
Singapore	22764	136533	10000	68502	0	0	0	0	0	0
Tanzania	500	73	500	250	400	19	0	0	0	0
United States	489	8064	0	0	0	0	0	0	0	0
Zambia	0	0	27	247	600	870	0	0	0	0
Zimbabwe	1650746	1227759	2284527	1800079	2453570	1591357	2493000	1088321	2013000	834552
<b>GRAND TOTAL</b>	<b>1860165</b>	<b>2857585</b>	<b>2381322</b>	<b>3026270</b>	<b>2573876</b>	<b>3092666</b>	<b>2591851</b>	<b>2303100</b>	<b>2094432</b>	<b>2391859</b>

\* Quantity = kilograms

\* Value = Rand (ZAR) FOB/FCA Country of origin

According to Wessels (2003), there are no domestic market quality standards in place for the evaluation of imported bananas and the NDA will only investigate and compile standards once complaints are received from consumers or other role-players in the market place. The only regulations to adhere to are those relevant for phyto-sanitary and plant protection purposes (See Appendix C). These regulations are specified under the Agricultural Pests Act, 1983 (Act no.36 of 1983) and is administered by the National Department of Agriculture's (NDA) Directorate: Plant Health and Quality (DPHQ), Sub-directorate: Plant Health. The Codex Standard for bananas is nevertheless an important guideline to be used as it is internationally accepted (See Appendix G).

According to Bolton (2003), the importer of bananas must apply for a permit for the importation of controlled goods in terms of the provisions of the Agricultural Pests Act at the DPHQ. If import conditions for the specific product are already in place, a permit is issued to the importer who must provide a copy of the permit and conditions to the foreign supplier. The National Plant Protection Organization (NPPO) of the exporting country must issue a phyto-sanitary certificate, warranting that the product is complying with the conditions as set out by the South African permit. An original phyto-sanitary certificate and a copy of the permit must accompany each consignment. At the regulated port of entry the consignment is verified against the SPS permit, as well as the SPS certificate. The inspectors of DPHQ assess the risk level of the products on which a decision is made whether the consignment may proceed or not.

<sup>5</sup> Note that this is a very rough estimation since information pertaining to how these values are derived is not recorded.

**In the case of Mozambique** there is currently no import conditions specified on the importation of bananas. This entails that a Pest Risk Analysis (PRA) must be done in collaboration with the DPHQ in South Africa (see Appendix D and E). The PRA is done in accordance with the procedures set out by the International Plant Protection Convention (IPPC). A request for a PRA can only be done by a domestic importer seen that the SPS permit is issued in the name of the importer and not the foreign supplier.

Once the application is filed the correspondence in terms of the contents of the PRA is done by the Division: Protocol and Work Programs of the DPHQ, also in accordance with IPPC. All costs involved are for the importer of the controlled goods and a quote may be obtained beforehand from DPHQ.

As mentioned, compliance is necessary in terms of the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972), Agricultural Pests Act, 1983 (Act no.36 of 1983), various regulations on, amongst others, maximum levels of pesticides, microbiological standards, packaging and advertising, etc. The Health Act, 1977 (Act No. 63 of 1977), which encompasses regulations on general hygienic handling and transportation of foodstuffs, must also be adhered to.

#### 4. Pricing and Logistics Analysis

To obtain accurate producer prices so that an accurate competitiveness profile for Mozambique could be compiled, was very difficult. The larger suppliers kept this confidential and the *sector familiar* producers were prepared to accept the best price they could get, often stating fictitious amounts; thus creating a very unreliable basis for calculating prices. Nevertheless, the rest of this section shows how the DDP price of bananas delivered to Johannesburg from Manica (CP is Chimoio) and Maputo (CP is Maputo) Provinces, respectively, was derived.

The first step was to establish an acceptable price delivered to the respective consolidation points (i.e. an EXW Chimoio and Maputo prices). From discussions with Fruta Lubombo, Shoprite, Central Market and some other banana traders, it seems reasonable that a fair producer price for bananas at the consolidation points would be in the region of MZM4000/kg. All those interviewed, as well as those who attended the 30 September 2003 seminar, agreed that this might be a fair price<sup>6</sup> in Maputo and Manica. This translates to around USD166 per MT<sup>7</sup>.

The second step was to calculate the FOB/FCA costs. The FOB/FCA costs<sup>8</sup> for Maputo and Manica are USD18.75 and USD56 per MT, respectively (see Table 7 and Tables F.1 and F.2 in Appendix F). If these costs are added to the EXW price at the CP's then the estimated FOB/FCA Mozambique prices are USD185.07 and USD222.29 per MT for Maputo and Manica, respectively. To get the estimated DDP price in Johannesburg the delivery cost per ton must be added. This is USD6.25<sup>9</sup> and USD63.50 per MT for Maputo and Manica, respectively (See Table 7). Thus, the estimated DDP price Johannesburg is USD191.32 and USD285.79 per MT for Maputo and Manica, respectively (See Table 7).

In the case of Maputo this price is lower than the average DDP market demand price in Johannesburg, but for Manica the opposite is true, i.e. Maputo is more competitive than Manica. This issue is further explored in the Table 8. From a market point of view, if bananas are sold in 20kg boxes as in South Africa, then the DDP Johannesburg price would equate with USD5.72 for bananas from Manica and USD3.83 for bananas from Maputo.

**Table 7: Estimated Delivered Price for Bananas to Johannesburg (Per Metric Ton)**

Province	Consolidation point	FOB/FCA Costs Mozambique	Estimated Price FOB/FCA Mozambique	Delivery costs per TON (If shipped in FCL)	Estimated DDP price Johannesburg	Average DDP market demand price in Johannesburg*
			USD/MT	USD/MT	USD/MT	USD/MT
MAPUTO	MAPUTO	18.75	185.07	6.25	<b>191.32</b>	273.26
MANICA	CHIMOIO	56.00	222.29	63.50	<b>285.79</b>	

Delivery estimates include all consolidation, transport, documentation and customs formalities.

The standard deviation for the average DDP market demand price in Johannesburg is 13%.

\* - Note that this price is derived from an estimated average retail price in Johannesburg (See Appendix F).

<sup>6</sup> Should there be a fluctuation, the MS Excel matrix is structured to accommodate these fluctuations.

<sup>7</sup> The exchange rate for the Mozambique Metical (MZM) to the USD is based on the exchange rate during the period of the study, from 01 June 2003 to 30 September 2003. This was **USD1.00 = MZM24050**.

<sup>8</sup> Transport and customs formalities comprise 13 and 20 per cent of the estimated DDP price in Johannesburg for Maputo and Manica, respectively. The rest of the cost is mainly made up by the product cost.

<sup>9</sup> Take note of comments on these costs in the "Main Report" in section 2.3.2.

Table 8 provides the price competitive indicators in Mozambique, as well as a sensitivity analysis<sup>10</sup>. The competitive margin depends on the price of the product in Mozambique, as well as on the situation in the South African market. Hence, it was decided to include a sensitivity analysis, i.e. adjusting the South African price up and down with intervals of 10 per cent. Moreover, if the price in South Africa drops by 20 per cent Maputo banana producers will still be marginally competitive. On the other hand, banana producers in Manica will become marginal competitive if the price of bananas in South Africa rises by 10 per cent. It should be noted that the margins indicated in Table 8 are very thin and does not leave much room for large price drops. Given the information shown in Figure 3 it confirms that marketing at the right time could be crucial.

**Table 8: Competitiveness of Banana Exports to South Africa**

Province	Actual price CP (moz)	Actual price to compete in SA (calculated back to CP Moz)	Price competitive	If the price in South Africa fluctuates up or down			
	Metical/kg	Metical/kg		% MZM/kg			
				-20%	-10%	+10%	+20%
MAPUTO	4 000	5 911	MARGINAL	4 729	5 320	6 502	7 093
MANICA	4 000	3 707	NO	2 966	3 336	4 078	4 448

In conclusion, even though it appears that Maputo can compete on the South African market, provided they use the right marketing window, it is vitally important that producers/exporters adhere to the standards and regulations set by the DPHQ in South Africa – these were discussed in the previous section.

<sup>10</sup> Electronic versions (in MS Excell format) of the information shown in Appendix F can be used to calculate the price competitiveness of the product with different prices at the consolidation point, as well as with different prices in the South African market.

## 5. SWOT analysis

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>● Good quality Bananas is already produced.</li> <li>● Producers have already organized themselves into associations.(e.g. APEB)</li> <li>● Producers in Maputo province are close to the market in SA.</li> <li>● “Seed stock” comes from SA.</li> <li>● Mozambique soil is ideally suited to the production of bananas.</li> <li>● Bananas from Maputo are price competitive in South Africa.</li> <li>● Mozambique can supply bananas throughout the year.</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>● Sub-standard production practices and low yields.</li> <li>● Bananas cannot be produced commercially and profitably under rain fed conditions with dry periods. Irrigation systems must be established and operational.</li> <li>● Low product quality and poor post-harvest handling. Vendors in Maputo mention that imported bananas sell faster due to a better appearance.</li> <li>● Poor packaging and inadequate transportation conditions, as well as deficiencies in cold storage and limited choice of export companies.</li> <li>● Special training is required for farmers and exporters in regard to export market quality and packaging demands.</li> <li>● High production costs due to high cost of fuel and lubricants, irrigation systems, etc.</li> <li>● Production costs can easily increase if improved technology is used. Irrigation (investment and energy), fertilizer, pesticides, plastic bags, and packaging materials are quite expensive and are usually imported. When compared to RSA, costs are much higher.</li> <li>● Limited level of knowledge on Mozambican side in terms of export tasks.</li> <li>● No current export distribution channel to South Africa.</li> <li>● Bananas from other outside the Maputo region are not price competitive in South Africa. (Manica is marginally competitive.)</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>● Although small, there exists opportunities to export to South Africa, especially since Zimbabwe has political problems.</li> <li>● Potential buyers have indicated their willingness to explore imports from Mozambique.</li> <li>● Short distance to market outlets compared with major competitors.</li> <li>● No seasonal fluctuations. SA has production seasons that effect price. (Market Window.)</li> <li>● Dried fruit producers in Mpumalanga need consistent supply year round.</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>● Bureaucratic delays at expediting export/import formalities associated with SPS compliance, pest risk assessment, issuing import permits, documentation, etc.</li> <li>● Border delays. Bananas have a seven day market window.</li> <li>● Imports, especially from Zimbabwe. (<i>This could translate into an opportunity with the problems recently experienced in Zimbabwe.</i>)</li> <li>● Floods</li> </ul>

## 6. Conclusions

It is clear that Mozambique has the capacity to produce high quality bananas for the South African market. Although the major production of bananas is from corporate sources, much of the banana production is in the hands of the 'sector familiar' and it is difficult, if not impossible to export from these smallholders unless they can organise themselves into associations or representative groups for negotiation, quality control and production purposes.

Keeping the above in mind, there exists opportunities to export bananas to South Africa, although not in large volumes. Price and quality will be crucial. For instance, bananas from Manica province start at the same price as the Maputo product at the respective CP's, but delivery costs from Manica are high and thus could exclude the sale of bananas from this region unless the farmers are prepared to accept lower prices at the CP's. **Bananas are very price sensitive!!** Thus, **controlling** production, packaging and transport costs will be the main determinants whether Mozambique would be able to sell bananas profitably on the domestic market. According to Joubert (2002), farmers who have investigated the possibility of banana production in Mozambique are of the opinion that donor capital may be needed for export development to South Africa.

To succeed in this market, Mozambique needs to commit itself into developing the fruit export sector in general and the banana sector in particular. Growers would need to be able to grow and pack quality products and deliver them to the market at fair prices. Production would have to be market oriented, and play according to the idiosyncrasies of the export market. Government needs to have a critical role of primarily providing information related to market oriented research, help set priorities and provide incentives.

If the 'sector familiar' is to play a role in exports, they must organise themselves and appoint representatives or establish associations that are mandated to negotiate with South African buyers. The fewer, (i.e. the more representative they are) the better it would be.

Once the issue of representative bodies has been addressed, then these representatives, with a mandate from the Mozambique Government, (i.e. MADER, Agriculture) can pursue assistance from their counterparts in South Africa. With a view to exploiting the import market in South Africa, and in the spirit of NEPAD/SADC, assistance can be requested from Agricultural Research Council, South Africa, who may need to be persuaded to get involved in assisting Mozambique to overcome problems relating to the export market.

With this assistance and others like the Perishable Products Export Control Board PPECB, nominated producers should be trained in the complex Codex, SPS and import control requirements for the South African (and other) international markets. *(The quality is already good, but give attention to modern growing methods i.e. blue bags, fertilizers, irrigation, etc).* Vital to the whole process would be negotiations with Government, Customs authorities and maybe even SADC officials regarding border formalities.

*One word of caution: In interviewing banana producers and commercial farmers, it was evident that they viewed Mozambique bananas as a threat to their market sales. Negotiating with them regarding the **seasonality** of the produce may win them around. The sub-tropical dried fruit*

*association in Mpumalanga was very interested in Mozambique bananas, especially when they realized that continuity of supply could be all year round as opposed to certain seasons only.*

**Even with the above caveat, it was evident that the 16 FPM's, their agents and the South African regulatory bodies had a very positive attitude to assisting Mozambique to achieve the necessary export readiness.**

## 7. Recommended future action

### Bananas

Problem/Challenge identified	Action	Projected outcome	Possible Agencies to assist
<p><b>Production inefficiencies</b></p>	<p>Establish a banana <b>research and training institute</b>. Responsibilities of the institute should include:</p> <ul style="list-style-type: none"> <li>(i) develop local expertise in developing plant and genetic material in liaison with South African counter parts,</li> <li>(ii) better consumer research,</li> <li>(iii) research into market development aids for small-scale farmers, e.g. packaging and transport methods to preserve quality from farm to ripening facilities,</li> <li>(iv) develop practical production training material</li> </ul> <p>Farmers should be able to visit the institute to acquire skills on a scheduled basis or alternatively extension officers could be used to train farmers in acceptable and appropriate production methods.</p>	<p>Higher profitability through increased efficiency.</p> <p>Overall improvement of plantation material.</p> <p>Mutual understanding of stumbling blocks and seeking joint solutions.</p> <p>Better trained farmers.</p>	<p>MADER</p> <p>Ministry of Education</p> <p>PoDE (Technical Learning programme – TLC)</p>
	<p>Formation of <b>small producer associations</b> to achieve the necessary economies of scale and mass to buy inputs and negotiate with buyers. This will not necessarily facilitate exports of bananas by such groups in the short term, but rather in the medium/long term as the benefits of the producer associations become clear and the benefits are translated into higher profits and reinvestment. Moreover, as producers become more sophisticated and knowledgeable in the market they could endeavour to develop an <b>“exports marketing-channel”</b> to South Africa.</p>	<p>Shared information/experience will lead to overall improvement of plantation material and growing efficiency</p> <p>Better negotiating power.</p> <ul style="list-style-type: none"> <li>-seed stock</li> <li>-finance</li> <li>-transport</li> <li>etc</li> </ul> <p>Better economies of scale to undertake capital investments.</p>	<p>APEB.</p> <p>IPEX</p> <p>MIC/DRI</p> <p>Gov Incentive Program</p>

Problem/Challenge identified	Action	Projected outcome	Possible Agencies to assist
<b>Ripening and handling facilities</b>	<p>Expand and improve ripening facilities in such a way as to also ensure better access to such facilities by all banana farmers.</p> <p>Capital investments in these facilities will be necessary.</p> <p>Properly trained personnel will have to manage such facilities to ensure efficient logistics and economies of scale.</p> <p>In some cases it might be necessary to make investments in Mozambique to enable “<i>just-across-the-border</i>” trade in an efficient and profitable manner. Bananas are a typical case where ripening facilities in Mozambique could improve the ability of Mozambican farmers to serve markets in Mpumalanga and Limpopo in a timely manner. However, the further afield the market, e.g. the Johannesburg Fresh Produce Market, it may be better to send bananas to that specific market’s ripening facilities in order to preserve quality.</p> <p>Post harvest handling and transport will be crucial in determining the success of exporting bananas.</p>	<p>Better control over quality.</p> <p>A central point where buyers and sellers can meet.</p> <p>Improved coordination where exports are concerned.</p>	<p>CPI</p> <p>APEB</p> <p>IPEX</p> <p>Transport agencies like Mozline, etc</p>
<b>Lack of sufficient production for exports</b>	<p>This is an over arching problem as a result of the aforementioned problem areas. Hence, over and above the suggested actions the following should also be addressed:</p> <p>Establish micro-mentorship programmes based on business principles<sup>1</sup> between those farmers that currently have the capacity<sup>2</sup> to export and selected high potential prospects that could export with limited investment in human and physical capital.</p> <p><sup>1</sup> – incentives for mentor farmers should be included and this could be affected by partnership/joint venture activities to ensure returns to mentor farmers for their time.</p> <p><sup>2</sup> – high investment in technology, good production and marketing knowledge, well linked up in the supply chain.</p>	<p>Better linkages between small and large scale farmers, and hence transfers of human capacity in terms of production and marketing.</p> <p>Ensure continuous high quality produce that can be exported.</p> <p>Fostering local partnership and alliances.</p>	<p>PoDE (Technical Learning programme – TLC)</p> <p>APEB</p> <p>MADER</p>

## 8. Contacts Interviewed

For the purposes of this report the following companies and individuals were interviewed in Mozambique and in South Africa.

We would like to give credit and thanks to all those who participated in providing information and assistance. The general attitude was helpful and willing to assist Mozambique with this undaunting task.

### INTERVIEWS IN SOUTH AFRICA SPECIFICALLY FOR BANANA INFORMATION

NAME	COMPANY	TEL. NO	COMMENTS
Oosthuizen, J	RSA Fresh Produce Market	011 613 4391	Potential Buyer
Richards, M	Fruit & Veg City	011 613 4590	Potential Buyer
Holtzkampf, Charlotte	Johannesburg Fresh Products	011 613 2049	Potential Buyer
De Bruyn, Rika	Banana Growers Assoc	013 755 2714	Joint Venture Opportunities
Wentzel, G	RSA Fresh Produce Market	083 253 7597	Potential Buyer (Agent)
Van Zyl, B	Subtropico	011 613 8611	Potential Buyer
Borslap, C	Woolworths	083 259 8084	Potential Buyer
Van Tibberch, J	Fruit & Veg City	C.T.	Potential Buyer
Breslin, M	Woolworths	021 407 9111	Potential Buyer
Van Poulke, N	Pick n' Pay	021 936 8400	Potential Buyer
Hamilton, C	Epping Fresh Produce Market	021 531 2191	Potential Buyer
Joubert, W	Banana Growers Assoc. of SA		Joint Venture Opportunities
Prinsloo, H.	Banana Growers Assoc. of SA		Joint Venture Opportunities
Naude, L	Freshmark, Centurion, Gauteng		Potential Buyer (Agent)
Waterboer, N	Freshmark, Centurion, Gauteng		Potential Buyer (Agent)
Claussen, J	Freshmark, Polekwane, Limpopo		Potential Buyer (Agent)
Palley, S	Freshmark, Durban, Kwazulu-Natal		Potential Buyer (Agent)
Taylor, D	Freshmark, Durban, Kwazulu-Natal		Potential Buyer (Agent)
Stock, A	Freshmark, Port Elizabeth, Eastern Cape		Potential Buyer (Agent)
Smith, N	Freshmark, Bloemfontein, Free State		Potential Buyer (Agent)
Muller, A	Freshmark, Cape Town, Eastern Cape		Potential Buyer (Agent)
Adam, M	Freshmark, Cape Town, Eastern Cape		Potential Buyer (Agent)
Ford, B	Woolworths, Cape Town		Potential Buyer
Oliver, C	Woolworths, Cape Town		Potential Buyer
Joubert, W	Banana Growers Assoc. of S. A., Nelspruit		Joint Venture Opportunities

## APPENDIX A

## Specifications for bananas

## Container

Container type	Dimensions			Net container content (Kg)
	Outside Length (mm)	Outside width (mm)	Maximum Inside Depth (mm)	
Carton	590	390	200	19.5
Single Carton	590	390	175	19.5
Carton	300	200	90	2

Note the date of the day on which the fruit was picked must also be indicated on the container.

## Size groups

Length of fruit	Size group
220 mm +	X-large
190-220 mm	Large
165-220 mm	Medium

## Colour codes

Code	Description
A1	Green
A2	Mature
B1	Breaker
B2	Half ripe
B3	Ripe
C1	Full ripe
C2	Spotted ripe

APPENDIX B

Prohibited and Restricted Goods Index

JACOBSENS PROHIBITED AND RESTRICTED GOODS INDEX - 35 - (182) 11.09.97 IMPORT 08.01						
CHAPTER 8 EDIBLE FRUIT AND NUTS; PEEL OF CITRUS FRUIT OR MELONS						
Head- ing	Sub- heading	Designation of Goods	Prohibition or Restriction	Authority	Action Required	Ref- erence
		NOTES: 8.1 Any foodstuff imported into or consigned to any place within the Republic of South Africa/SWA shall bear a label stating any particulars specifically required by the Act or Regulations in either of the official languages of the Republic, except as regards information which in terms of the Regulations is required to be printed in both official languages 8.2 Foodstuffs containing any food additive not permitted by Regulation 8.3 Articles of food in unlabelled containers 8.4 All foodstuffs must be detained for inspection by the Port Health Officer except for consumption by Diplomatic and Consular representatives 8.5 All plants and plant material must be detained for inspection by the Directorate of Plant and Seed control		The Foodstuffs, Cosmetics, Disinfectants Act 54/1972, G.N. 71/1963, Ord. 36/1952  The Foodstuffs, Cosmetics and Disinfectants Act. 54/1972, G.N. 71/1963, Ord. 36/1952  Department of National Health and Population Development, Director of Health Services, SWA Act 54/1972, Ord. 36/1952  Agricultural Pests Act 1983 (Act 36/1983)		
08.01	0801.10 0801.20 0801.30	Coconuts, brazil nuts and cashes nuts, fresh or dried, whether or not shelled or peeled	(1) See Par. (Q), page iv (2) See note 8.4	Agricultural Pests Act 36/1983 The Foodstuffs, Cosmetics and Disinfectants Act 54/1972	Detain for Plant Inspector / Port Health Officer	
08.02	0802.11 0802.12 0802.21 0802.22 0802.31 0802.32 0802.40 0802.50 0802.90	Other nuts, fresh or dried, whether or not shelled or peeled	(1) See par. (Q), page iv (2) See Note 8.4	Agricultural Pests Act 36/1983 The Foodstuffs, Cosmetic and Disinfectants Act 54/1972	Detain for Plant Inspector/Port Health Officer	
08.03	0803.00	Bananas, including plantains, fresh or dried	(1) See par. (q), page iv (2) See Note 8.4	Agricultural Pests Act 36/1983 The Foodstuffs, Cosmetic and Disinfectants Act 54/1972	Detain for Plant Inspector/Port Health Officer	
08.04	0804.10 0804.20 0804.30 0804.40 0804.50	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried	(1) See par. (Q), page iv (2) See Note 8.4	Agricultural Pests Act 36/1983 The Foodstuffs, Cosmetics and Disinfectants Act 54/1972 G.N. 1967/1964	Detain for Plant Inspector/Port Health Officer	
08.05	0805.10 0805.20 0805.30 0805.40 0805.90	Citrus fruit, fresh or dried	(1) See par. (Q), page iv (2) See Note 8.4	Agricultural Pests Act 36/1983 The Foodstuffs, Cosmetics and Disinfectants Act 54/1972 G.N. R. 1967/1964	Detain for Plant Inspector/Port Health Officer	

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## APPENDIX C

## Phyto-sanitary Requirements

Plant Genus name	Common name	Plant Family
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**IMPORTANT**

1. The controlled goods referred to in this permit must at the time of importation be presented for examination under cover of a phyto-sanitary certificate issued by the recognised authority of the exporting country.
2. This permit does not exempt the holder from the provisions of any other Act, ordinance or agreement.

**Fresh fruit imported from \_\_\_\_\_**

**1. Additional declarations on the phytosanitary certificate:****1.1 The country of production is free from**

Fungi:  
Bacteria:  
Viruses:

Mites:  
Insects:  
Nematodes:

**1.2 In respect of pathogens and pests, which cannot be declared as country free from, the following must be declared on the phytosanitary certificate:**

- 1.2.1 The area of production is free from:
- 1.2.2 The consignment was inspected and found free from according to the procedure in the attached Addendum.
- 1.2.3 The consignment was fumigated with methyl bromide according to the following schedule to ensure freedom from:

Methyl bromide at NAP- tarpaulin or chamber:

Temperature	Dosage Rate (lb/1,000ft <sup>3</sup> )	Minimum Concentration Readings (ounces) at:	
		0.5 hour	2 hours
80°F or above			
70 - 79°F			
60 – 69°F			
50 – 59°F			
40 – 49°F			

The phytosanitary certificate must contain detail of the treatment (fruit temperature, dosage and treatment period) in the appropriate space available, and must be accompanied by a certificate issued by a recognised fumigation company.

The fumigation shall comply with all other legislation and be within the residue and tolerance requirements of the South African Department of Health.

2. **To be declared as an additional declaration on the phytosanitary certificate:** The consignment was sampled according to the procedure in the attached addendum. This provide for a 95% confidence level of detecting infested/infected fruit, if the infestation/infection rate with regard to quarantine organisms is 2% or higher. Additionally, all suspect fruit should be cut open to determine freedom from quarantine organisms as listed.
3. **On arrival of the consignment, a representative sample of 2% will be drawn and suspect fruit from each box will be cut.**

## APPENDIX D

## INSPECTION PROCEDURE

**1. Principle of inspection procedure**

*The principle of inspection according to a specific rate is based on a sample of 150 boxes. This provides for a 95% confidence level of detecting boxes with infested/infected fruits if the infestation/infection rate is 2% or greater in consignments varying from 200 to 2 000 or more boxes.*

**2. Method****2.1 Calculating the sampling interval:**

Determine the number of boxes in the unit (consignment) intended for export. Divide the number of boxes by 150. The quotient will be the sampling interval.

**2.2 Determining the first box to be inspected:**

Randomly select a number from 1 to 13. To this number, add the quotient calculated in point 2.1. This will be the number of first box to be inspected.

**2.3 Determining subsequent boxes for inspection:**

Add the sampling interval, calculated in point 2.1, to the number of the first box, calculated in point 2.2, to obtain the number of the second box. Determine the number of the third box by adding the number of the second box to the sampling interval. Repeat until the process has accounted for 150 boxes.

**2.4 Example for 2 000 boxes:**

2 000 boxes  $\div$  150 = 13 (13, or the quotient, is the sampling interval)

First box to be inspected: select any number from 1 to 13: e.g. 9

Second box to be inspected:  $9 + 13 = 22$

Third box to be inspected:  $22 + 13 = 35$ , etc.

**3.** All fruit from the sample (150 boxes) must be inspected.

**4.** Should any of the inspected fruit be infested with any of the quarantine listed in this document, the consignment (unit) shall be rejected.

**APPENDIX E*****PEST RISK ANALYSIS QUESTIONNAIRE*****DATA REQUIREMENTS****1. INFORMATION ON THE CROP**

- 1.1 Scientific name, author/s
- 1.2 Common name
- 1.3 Variety/cultivar name (susceptibility/resistance to pests)
- 1.4 Plant Product / Commodity / Plant Part
- 1.5 Export destination/s (other countries)
- 1.6 Import origin (from which countries is the same commodity imported, including origin of mother material)

**2 PRODUCTION AREA**

- 2.1 States, regions, provinces, districts etc.
- 2.2 Area maps (general and enlarged)
- 2.3 Amount proposed for export (priority / management)

**3. PRODUCTION/OR CULTIVATION INFORMATION**

- 3.1 Internal legislative restrictions (e.g. pest free areas, import control measures/ requirements – provide details)
- 3.2 Product from area officially certified pest free by NPPO (provide details)
- 3.3 Specific pest management, surveillance programmes and certification schemes not controlled by NPPO (e.g. survey data/ sampling methods, fruit fly)
- 3.4 Harvesting methods, dates

**4. PEST LIST (fungi, insects, mites, bacteria, nematodes, viruses, other)**

- 4.1 Scientific names and authors
- 4.2 Classification
- 4.3 Synonyms commonly used
- 4.4 Common name (most accepted one/s)
- 4.5 Hosts (scientific name & variety if relevant)
- 4.6 Plant part attacked
- 4.7 Symptoms/ damage
- 4.8 Distribution
- 4.9 Prevalence (common, occasional or rare)
- 4.10 Control measures
  - 4.10.1 Cultural (host eradication, crop rotation, use of traps)
  - 4.10.2 Biological (use of insects/ pathogens, suppressive soils, antagonism, cross protection)
  - 4.10.3 Physical
  - 4.10.4 Chemical active ingredient (foliage sprays/ dusts, method, time, frequency of application)
  - 4.10.5 Biology (life cycle – briefly: epidemiology, vectors, transmission)
- 4.11 Technical references to biology of pests
- 4.12 Laboratory test available
- 4.13 Data sheets

## **5. PACKING AND STORAGE**

- 5.1 Packing methods
- 5.2 Inspection procedures (inspection rates)
- 5.3 Post harvest disinfestation treatment
- 5.4 Storage conditions and security
- 5.5 Transportation (national and international)

## **6. EXPORT PROGRAMME**

- 6.1 Port of entry (export destination)
- 6.2 Current phytosanitary certification procedures (e.g. field inspections, sampling & other points of issue)

## **7. LITERATURE REFERENCES**

Note: All data (if possible) provided should be less than 10 years old and validated/endorsed by the National Plant Protection Organization of the exporting country.

## APPENDIX F

Table F.1: Cost calculations for exports from Manica Province, Mozambique to 'delivered duty paid' South Africa (December 2003)

Forward - Moz to SA					Backwards - SA to MOZ	
Start	@	4,000.00	MZM/kg	Target	3,707.70	MZM/kg
Price delivered to the C.P.	MZM	4,000,000.00	Start	End	3,707,703.88	MZM per Metric Tonne
Price delivered to the C.P. (USD)	USD	166.32			154.17	(@ 24 050)
Delivery of empty container to the C.P.	USD	11.50			11.50	(From Container Depot to C.P.)
Price EXW Chimoio (C.P.)	USD	177.82			165.67	EXW
Full container to point of exit - Beira	USD	22.85			22.85	
Terminal Handling Charges	USD	3.25			3.25	(Only at a Sea Port)
Cargo Handling (Manuseamento)	USD	9.00			9.00	(Clearing Agents, Handlers etc)
Container Movement Tax	USD	2.50			2.50	(Charge from Mozambique Customs)
Movement Guide	USD	0.20			0.20	(Charge from Mozambique Customs)
Customs Service Tax @ 3% of Invoice(FOB)	USD	6.67			6.29	(Charge from Mozambique Customs)
Price FOB/FCA Beira	USD	222.29			209.76	(At the Exit Port)
Seafreight to Durban	USD	21.25			21.25	
Price CIF/CIP Durban	USD	243.54			231.01	(Unloaded on the quay)
Clearing Formalities	USD	18.50			18.50	South African Port Charges
Customs Duties in South Africa	USD	0.00			0.00	No duties for SADC
Carriage to Johannesburg	USD	23.75			23.75	(Railage costs)
Price DDP Johannesburg	USD	285.79			273.26	(This is the final price to the SA wholesaler.)
S.A. Wholesaler's Margin @ 50%	USD	40.83			39.04	
S.A. Price to Retailer		326.62			312.30	
S.A. Retailer's Margin @ 75% ave.		114.32			109.30	(75% Average for Chain Stores)
DELIVERED RETAIL PRICE IN S.A.	USD	440.93	End	Start	421.60	PER Metric Tonne
Comparative Retail Price in S.A.	USD	421.60	Per Metric Tonne (ZAR48/kg)			

Note: Costing is per Metric Tonne but based on Full Container Loads of 20 Metric Tonnes (or 26 Cubic metres)

Table F.2: cost calculations for exports from Maputo, Mozambique to 'delivered duty paid' South Africa (December 2003)

Forward - Moz to SA					Backwards - SA to MOZ	
Start	@	4,000.00	MZM/kg	Target	5,911.47	MZM/kg
Price delivered to the C.P.	MZM	4,000,000.00	Start	End	5,911,465.50	MZM per Metric Tonne
Price delivered to the C.P. (USD)	USD	166.32			245.80	(@ 24 050)
Delivery of empty container to the C.P.	USD	0.00			0.00	(From Container Depot to C.P.)
Price EXW Maputo (C.P.)	USD	166.32			245.80	EXW
Full container to point of exit - Ressano Garcia	USD	2.50			2.50	
Terminal Handling Charges	USD	0.00			0.00	(Only at a Sea Port)
Cargo Handling (Manuseamento)	USD	9.00			9.00	(Clearing Agents, Handlers etc)
Container Movement Tax	USD	1.50			1.50	(Charge from Mozambique Customs)
Movement Guide	USD	0.20			0.20	(Charge from Mozambique Customs)
Customs Service Tax @ 3% of Invoice(FOB)	USD	5.55			8.01	(Charge from Mozambique Customs)
Price FOB/FCA Ressano Garcia	USD	185.07			267.01	(Customs Exit at Ressano Garcia)
	USD	0.00			0.00	
	USD	185.07			267.01	
Clearing Formalities	USD	1.50			1.50	South African Port Charges
Customs Duties in South Africa	USD	0.00			0.00	No duties for SADC
Carriage to Johannesburg	USD	4.75			4.75	(Railage costs)
Price DDP Johannesburg	USD	191.32			273.26	(This is the final price to the SA wholesaler.)
S.A. Wholesaler's Margin @ 50%	USD	27.33			39.04	
S.A. Price to Retailer		218.65			312.30	
S.A. Retailer's Margin @ 75% ave.		76.53			109.30	(75% Average for Chain Stores)
DELIVERED RETAIL PRICE IN S.A.	USD	295.18	End	Start	421.60	PER Metric Tonne
Comparative Retail Price in S.A.	USD	421.60	Per Metric Tonne (ZAR48/kg)			

Note: Costing is per Metric Tonne but based on Full Container Loads of 20 Metric Tonnes (or 26 Cubic metres)

**APPENDIX G**

**CODEX STANDARD FOR BANANAS  
CODEX STAN 205-1997**

(Electronic Appendix Attached – Adobe)

## CODEX STANDARD FOR BANANAS

### CODEX STAN 205-1997

#### 1. DEFINITION OF PRODUCE

This standard applies to commercial varieties of bananas grown from *Musa* spp. (AAA) of the *Musaceae* family, in the green state, to be supplied fresh to the consumer, after preparation and packaging. Bananas intended for cooking only (plantains) or industrial processing are excluded.<sup>1</sup> Varieties covered by this Standard are included in the Annex.

#### 2. PROVISIONS CONCERNING QUALITY

##### 2.1 MINIMUM REQUIREMENTS

In all classes, subject to the special provisions for each class and the tolerances allowed, the bananas must be:

- whole (taking the finger as the reference);
- firm;
- sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
- clean, practically free of any visible foreign matter;
- practically free of bruising;
- practically free of pests affecting the general appearance of the produce;
- practically free of damage caused by pests;
- with the stalk intact, without bending, fungal damage or dessication;
- with pistils removed;
- free of malformation or abnormal curvature of the fingers;
- free of damage caused by low temperature;
- free of abnormal external moisture, excluding condensation following removal from cold storage, and bananas packed under modified atmosphere conditions;
- free of any foreign smell and/or taste;

In addition, hands and clusters must include:

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<sup>1</sup> Governments, when indicating the acceptance of the Codex Standard for Bananas, should notify the Commission which provisions of the Standard would be accepted for application at the point of import, and which provisions would be accepted for application at the point of export.

- a sufficient portion of the crown of normal colouring, sound and free of fungal contamination,
- a cleanly cut crown, not bevelled or torn, with no stalk fragments.

2.1.1 The development and condition of the bananas must be such as to enable them:

- to reach the appropriate stage of physiological maturity corresponding to the particular characteristics of the variety,
- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination in order to ripen satisfactorily.

## 2.2 CLASSIFICATION

Bananas are classified in three classes defined below:

### 2.2.1 “Extra” Class

Bananas in this class must be of superior quality. They must be characteristic of the variety and/or commercial type. The fingers must be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality, and presentation in the package.

### 2.2.2 Class I

Bananas in this class must be of good quality. They must be characteristic of the variety. The following slight defects of the fingers, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- slight defects in shape and colour;
- slight skin defects due to rubbing and other superficial defects not exceeding 2 cm<sup>2</sup> of the total surface area;

The defects must not, in any case, affect the flesh of the fruit.

### 2.2.3 Class II

This class includes bananas which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified in Section 2.1 above. The following defects may be allowed, provided the bananas retain their essential characteristics as regards the quality, the keeping quality and presentation:

- defects in shape and colour, provided the product retains the normal characteristics of bananas;
- skin defects due to scraping, scabs, rubbing, blemishes or other causes not exceeding 4 cm<sup>2</sup> of the total surface area;

The defects must not, in any case, affect the flesh of the fruit.

### **3. PROVISIONS CONCERNING SIZING**

For the purposes of sizing bananas of the Gros Michel and Cavendish sub-groups, the length of the fingers is determined along the outside curve from the blossom end to the base of the pedicel where the edible pulp ends and the diameter is defined as the thickness of a transverse section between the lateral faces. The reference fruit for measurement of the length and grade is:

- for hands, the median finger on the outer row of the hand,
- for clusters, the finger next to the cut section of the hand, on the outer row of the cluster

The minimum length should not be less than 14.0 cm and the minimum grade not less than 2.7 cm.

### **4. PROVISIONS CONCERNING TOLERANCES**

Tolerances in respect of quality and size shall be allowed for produce not satisfying the requirements of the class indicated.

#### **4.1 QUALITY TOLERANCES**

##### **4.1.1 “Extra” Class**

Five per cent by number or weight of bananas not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class.

##### **4.1.2 Class I**

Ten per cent by number or weight of bananas not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

### **4.1.3 Class II**

Ten per cent by number or weight of bananas satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting, major imperfections, or any other deterioration rendering it unfit for consumption.

## 4.2 SIZE TOLERANCES

For all classes, 10 per cent by number or weight of bananas not satisfying the requirements as regards sizing, but falling within the size immediately above and/or below those indicated in Section 3.

## 5. PROVISIONS CONCERNING PRESENTATION

### 5.1 UNIFORMITY

The contents of each package must be uniform and contain only bananas of the same origin, variety, and quality. The visible part of the contents of the package must be representative of the entire contents.

### 5.2 PACKAGING

Bananas must be packed in such a way as to protect the produce properly. The materials used inside the package must be new,<sup>2</sup> clean, and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

Bananas shall be packed in each container in compliance with the Recommended International Code of Practice for Packaging and Transport of Tropical Fresh Fruit and Vegetables (CAC/RCP 44-1995).

#### 5.2.1 Description of Containers

The containers shall meet the quality, hygiene, ventilation and resistance characteristics to ensure suitable handling, shipping and preserving of the bananas. Packages must be free of all foreign matter and smell.

### 5.3 PRESENTATION

- The bananas must be presented in hands and clusters (parts of hands) of at least four fingers. Bananas may also be presented as single fingers.
- Clusters with no more than two missing fingers are allowed, provided the stalk is not torn but cleanly cut, without damage to the neighbouring fingers.
- Not more than one cluster of three fingers with the same characteristics as the other fruit in the package may be present per row.

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<sup>2</sup> For the purposes of this Standard, this includes recycled material of food-grade quality.

## **6. MARKING OR LABELLING**

### **6.1 CONSUMER PACKAGES**

In addition to the requirements of the Codex General Standard for the Labelling of Pre-packaged Foods (CODEX STAN 1-1985, Rev. 2-1999), the following specific provisions apply:

#### **6.1.1 Nature of Produce**

If the produce is not visible from the outside, each package shall be labelled as to the name of the produce and may be labelled as to the name of the variety.

### **6.2 NON-RETAIL CONTAINERS**

Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside, or in the documents accompanying the shipment.<sup>3</sup>

#### **6.2.1 Identification**

Name and address of Exporter, Packer and/or Dispatcher. Identification code (optional).<sup>4</sup>

#### **6.2.2 Nature of Produce**

Name of produce if the contents are not visible from the outside. Name of variety and/or commercial type (optional).

#### **6.2.3 Origin of Produce**

Country of origin and, optionally, district where grown or national, regional or local place name.

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<sup>3</sup> Governments, when indicating their acceptance of this Standard, should notify the Commission as to which provisions of this Section apply.

<sup>4</sup> The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference “packer and/or dispatcher (or equivalent abbreviations)” has to be indicated in close connection with the code mark.

#### **6.2.4 Commercial Identification**

- Bananas in fingers (when appropriate);
- Class;
- Net weight (optional);

#### **6.2.5 Official Inspection Mark (optional)**

### **7. CONTAMINANTS**

#### **7.1 HEAVY METALS**

Bananas shall comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission for this commodity.

#### **7.2 PESTICIDE RESIDUES**

Bananas shall comply with those maximum residue limits established by the Codex Alimentarius Commission for this commodity.

### **8. HYGIENE**

8.1 It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3-1997), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

8.2 The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

**ANNEX**  
**LIST OF THE MAIN GROUPS, SUBGROUPS AND CULTIVARS OF BANANAS FOR DESSERT**

<b>Groups</b>	<b>Subgroups</b>	<b>Main cultivar</b>
AA	Sweet-fig	Sweet-fig, Pisang Mas, Amas Date, Bocadillo
AB	Ney Poovan	Ney Poovan, Safet Velchi
AAA	Cavendish	Dwarf Cavendish
		Giant Cavendish
		Lacatan
		Poyo (Robusta)
AAA	Cavendish	Williams
		Americani
		Valery
		Arvis
AAA	Gros Michel	Gros Michel
		Highgate
AAA	Pink Fig	Pink Fig
		Green pink Fig
AAA	Ibota	
AAB	Apple Fig	Apple Fig, Silk
	Pome (prata)	Pacovan Prata Ana
	Mysore	Mysore, Pisang Ceylan, Gorolo