

The structure and statistics of the banana industry in South Africa.

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STRUCTURE ET STATISTIQUES DE LA PRODUCTION BANANIERE EN AFRIQUE DU SUD.

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RESUME - Présentation, historique et évolution des zones bananières de la République Sud-africaine. Orientation de la production sur le seul marché intérieur. Rôle majeur exercé par le Banana Board dans la chaîne de commercialisation. Statistiques économiques de 1980 et 1982. En fin d'article, indication des principaux axes de recherche bananière.

DEVELOPMENT OF THE INDUSTRY

The early history of bananas in South Africa has not been recorded in detail. The cultivation of the crop in Natal, however, dates back to 1890 when the first plants were established in the Southbroom area. These plants are thought to be obtained from Indian labourers, who came from the Indian mainland to work in the Natal sugar plantations.

Large scale cultivation of bananas in Natal began only in the 1920's, and production was extended to the Transvaal in the 1930's. However, large scale cultivation in the Transvaal Lowveld was only initiated in the late 1940's.

The climatic requirements for the banana limit production to two main areas, namely the Eastern and Northern Transvaal Lowveld, and the coastal area of Natal. Until about 1954, Natal was the most important production area with 4850 ha under bananas. Thereafter, the hectareage in Natal decreased to 700 in 1975, due to various problems (shallow sandy soils, burrowing nematode, South-Easterly wind damage, seasonal and erratic rainfall, and limited

irrigation possibilities due to hilly topography and intermittent streams). Conversely, however, banana production in the Transvaal increased from 680 ha in 1950 to 7 500 in 1981 due to better soils, absence of burrowing nematode, less wind damage, and widespread use of irrigation.

In Natal, production of bananas has also started increasing again from 700 ha in 1975 to 1750 ha in 1981. The main reasons for this are more efficient marketing and higher prices ; the formation of the Natal Banana Association which has created enthusiasm for bananas ; strict phytosanitary precautions to prevent spread of burrowing nematode and Panama disease, and the marked improvement in irrigation practices.

IMPORTS AND EXPORTS

Until February 1976, a small quantity of bananas was imported annually, but imports have since stopped completely.

At the present time, no bananas are exported, the main reason being distance. South Africa cannot compete with countries in Central and South America which have a better climate, higher yields, and are able to deliver their bananas to the European markets within 4 to 11 days (at least 14 days from South Africa). Thus, our transport

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costs would be higher ; cooling, storage and ripening problems more serious, and quality control more difficult. In addition, our Dwarf Cavendish is not suitable for overseas markets. No future exports are envisaged at present.

THE BANANA BOARD

Function.

Prior to 1957, growers marketed their bananas independently, or through co-operatives, but there was no coordination on a national basis. The Banana Board was established by the Minister of Agriculture in October, 1957. This was in response to fears within the banana industry that overproduction would quickly cause prices to collapse, unless orderly marketing was introduced. The main functions of the Board are as follows :

- (a) the distribution and marketing of bananas outside the designated production areas;
- (b) to develop new markets during periods of high production and to distribute evenly in times of shortage;
- (c) to promote price stability;
- (d) to improve the quality of the marketed product.

The net result is that the Board ensures the producer receives the best price for his crop, and the consumer is supplied with a product of high quality. To fulfil these functions, the Board determines the price of bananas each week, according to supply estimates. These bananas are then bought, inspected, transported, ripened and distributed to the designated marketing areas.

Marketing.

In terms of the banana scheme, a producer may dispose of his bananas in three possible ways, namely :

- (a) by marketing his crop within the designated production areas - there are no restrictions and a producer can sell to anyone at any price, but the markets are limited;
- (b) by applying to the Banana Board for an exemption to sell his bananas outside the designated production areas - this is to enable supplies to be made to distant country towns, which fall outside the distribution pattern of the Board. Once again, customers and prices are negotiated independently;
- (c) by delivering bananas to the Board for sale, which is by far the greatest outlet. For bananas marketed by the Board, 13 x 4-weekly pools are operated for first grade and second grade (singles) fruit. Net proceeds for each pool are divided among producers in proportion to the quantity supplied during the pool period. The Board sells exclusively ripened bananas and only to designated marketing areas.

The Board has co-ordinators in each production area to whom producers give estimates of their crop during the next 2 weeks. The co-ordinators are advised by the Board how the weekly supply must be distributed.

Packing, Grading, Transport and Distribution.

After harvest, bunches are deheaded and divided into clusters (3-7 fingers) which are packed into 20 kg cartons. The packed cartons are delivered to the different co-ordinators at loading points throughout the production areas. Here, Board inspectors check the correct mass of each box and monitor quality standards. Only first grade and singles may be marketed outside the production areas. Cartons of incorrect mass or containing undersized or blemished fingers, are rejected at the loading points.

Banana cartons are transported in closed vehicles to the Board's ripening chambers at Wadeville and Pretoria (Transvaal) and Hammarsdale (Natal), and the ripening chambers of the Municipal markets at Cape Town, Port Elizabeth, East London and Kimberly. Ripened bananas are then sold through wholesale distributors (Reef and Natal) or the Municipal markets, to the retail trade. The distribution of available supplies is done according to supply and demand and absorptive capacity of the main marketing areas.

Marketing Problems.

The two main problems affecting orderly marketing of bananas are the perishable nature of the product and fluctuations in supply. Thus, weekly supply can vary between 700 and 2 500 tonnes and green bananas can only be stored for a maximum of 3 weeks. In times of surplus, it is difficult to obtain a market for the additional quantities, because of the time taken for demand to adjust to the increased supply. Furthermore, this fruit cannot be held over until a period of short supply.

Irregular seasonal production is a serious obstacle to the expansion of the industry and the development of the market. The problem is aggravated by the difficulty in making accurate long-term or even short-term estimates of production.

Price Policy.

Every week, the Board offers the total quantity of first grade ripened bananas available, to the approved wholesale distributors in the Reef and Natal, and the market masters of the other main centres. The Board fixes the price to wholesalers and markets weekly, depending on the quantity of fruit available. However, the Board does not fix the prices paid by the consumer since the wholesaler and retailer adds his own profit margin and this varies mainly according to distance and transport costs.

BANANA STATISTICS 1980-1981

The total quantity of bananas delivered to the Board during 1980-81 was approximately 20% higher than in the previous year which is mainly due to the first year of supply by Natal through the Board. However, the total production was evenly distributed and no real difficulties were experienced in disposing of this production.

Area under Bananas in South Africa.

As at 30 June 1981, there were 9258 ha under bananas in the country. Table 1 reflects the hectareage in the various production areas in comparison with previous years.

Although Burgershall is the largest banana area, the most expansion is taking place in the Natal, Malelane and Letaba areas. Total hectareage is currently expanding at the rate of about 1 000 ha every year.

This Williams cultivar which was distributed in 1974, occupied 17% of the total area in 1981, and this proportion is increasing annually. The remainder is all Dwarf Cavendish.

Quantities Delivered to the Board.

The total quantity of bananas supplied to the Board in 1980/81 was 4 776 880 cartons of 20 kg each, or 95 538

tonnes. This realised a total gross income of R29 782 219. Table 2 reflects the quantities produced by each production area in comparison to previous years.

Those production areas supplying a higher proportion of the total supply in relation to the area under production are Burgershall (35% of supply from 29% of the area) and Malelane (15% of supply from 11 % of the area). Levubu, Letaba and Natal all produced a smaller proportion of the supply in relation to the area under production.

Numbers of Banana Farmers and Levels of Productivity.

An analysis of each production area showing the number of registered growers supplying the Board, together with the yield levels achieved, is illustrated in Table 3 (means from 1979/80 and 1980/81).

The most productive area by far is the Malelane area where a small number of good farmers are situated. On the other hand, the Levubu and Natal areas have a large number of small, unproductive farmers who depress the statistics from those areas. Since it is considered uneconomical to farm bananas at a yield level of less than 10 t/ha, it is evident that 48 percent of registered growers in the Transvaal and 82 percent in Natal are farming their bananas at a loss. Only about 28 growers out of 300 are achieving yields of more than 20 t/ha. This underlines the drastic need for an improvement in farm management practices by the majority of growers.

TABLE 1.

Production Area	Hectares							Percent 1981	Estimate 1982
	1975	1976	1977	1978	1979	1980	1981		
Burgershall	2279	2181	2289	2552	2746	2384	2678	29	2644
Letaba	1354	1310	1453	1452	1711	1929	2172	23	2422
Levubu	1444	1234	1382	1349	1508	1398	1352	15	1418
Malelane	851	803	857	770	830	934	1050	11	1351
Natal	730	863	890	1103	1625	1569	1747	19	2191
Sabie	-	-	-	-	-	187	258	3	255
Total	6658	6391	6871	7226	8420	8214	9258	100	10281

TABLE 2.

Quantities Marketed Through Board (20 kg Units x 1 000)				
Area	1979	1980	1981	Percent 1981
Burgershall	1536	1535	1678	35
Letaba	984	1091	1068	22
Malelane	555	651	701	15
Natal	101	80	641	14
Levubu	510	545	576	12
Sabie	101	90	113	2
Total	3787	3992	4777	100

TABLE 3.

Production Area	No. of Growers		Yield first grade (t/ha)				
			0-5	6-10	11-15	16-20	> 20
Letaba	54	% of Growers	26	27	13	25	9
		% of Production	3	10	15	40	32
Malelane	12	% of Growers	18	19	-	27	36
		% of Production	1	2	-	34	63
Sabie	9	% of Growers	15	10	20	55	-
		% of Production	11	8	28	53	-
Levubu	61	% of Growers	33	20	36	8	3
		% of Production	11	18	51	15	5
Burgershall	66	% of Growers	13	24	33	15	15
		% of Production	1	8	26	30	35
Total	202	% of Growers	28	20	20	19	13
		% of Production	3	9	22	31	35
Transvaal		% of Growers	3	9	22	31	35
Natal	101	% of Growers	57	25	12	4	2
		% of Production	20	27	32	10	11

The number of growers in each area producing 50 000 boxes of first grade (1 000 tonnes) or more per annum are as follows :

Burgershall (6) ; Letaba (7) ; Malelane (4) ; Levubu (0) and Natal (0).

Quantities Sold in the Various Marketing Areas.

The number of 20 kg units sold in the various marketing areas of the country, compared to the previous year, are shown in Table 4.

The Reef, Cape Town and Pretoria take by far the greatest proportion of bananas sold (62 percent in 1980/81) although the proportion sold to these centres was less than in 1979/80 (75 percent). The reasons for this

drop are the introduction of Natal as a designated marketing area, and the marked increase in sales to the African markets (mines, townships and homelands).

Seasonal Fluctuation in Supply and Price.

The relationship between banana supplies, and prices paid to growers, according to the pool structure, is shown in table 5, which also shows the general increase in the average price per box paid to growers from year to year.

It is evident that the highest paying pools are from January to May. Supplies of first grade fruit during this period are lower, due to increased downgrading from thrips, mites, mechanical damage and undersized fruit, as well as generally lower yields resulting from «November dump». However, demand for bananas is highest during these months.

TABLE 4.

Marketing Centre	20 kg Units sold (x 1000)		
	1979/80	1980/81	Percent 1981
Reef	1587	1525	31,9
Cape Town	726	759	15,9
Pretoria	691	660	13,8
African markets	283	540	11,3
Natal	-	481	10,1
Port Elizabeth	257	284	5,9
Bloemfontein	119	138	2,9
East London	83	82	1,7
Kimberley	73	75	1,6
Other	173	233	4,9
Total	3992	4777	100,0

TABLE 5.

Pool Number	All Grades						First Grade	
	1977/78		1978/79		1979/80		1980/81	
	Boxes *	Price (R)	Boxes	Price (R)	Boxes	Price (R)	Boxes	Price (R)
1. 1 Jul.- 28 Jul.	209	3,18	250	2,44	274	3,27	277	3,80
2. 29 Jul.-25 Aug.	273	2,40	295	2,90	298	3,09	358	2,91
3. 26 Aug.-22 Sep.	280	3,11	332	2,59	336	2,88	413	2,62
4. 23 sep.-20 Oct.	303	3,55	393	2,95	384	3,00	410	3,46
5. 21 Oct.-17 Nov.	379	2,48	388	3,21	418	2,16	462	3,12
6. 18 Nov.-15 Dec.	360	2,39	376	3,16	403	3,43	474	2,66
7. 16 Dec.-12 Jan.	182	4,22	240	3,86	255	2,65	280	3,75
8. 13 Jan.-9 Feb.	213	4,12	292	3,38	240	4,31	307	4,79
9. 10 Feb.-8 Mar.	202	3,76	244	4,28	302	3,07	266	5,47
10. 9 Mar.-5 Apr.	184	4,94	208	5,02	261	3,31	238	6,38
11. 6 Apr.-3 May	219	3,21	242	4,02	278	4,62	238	7,04
12. 4 May-31 May	245	2,84	246	3,69	270	3,67	258	6,16
13. 1 Jun.-30 Jun.	249	2,34	282	2,38	272	3,62	283	5,25
Total	3297	3,14	3788	3,29	3992	3,25	4266	4,11
Gross Income (R) (m)	16,0		19,4		21,6		29,8	

* - Boxes x 1000.

From June to December, prices are lower due to over-supply and reduced demand. During winter (June to September) total demand is lower due to cold weather and competition from citrus. From October to December, demand is lower due to increasing competition from deciduous fruits.

Price Build-up from Producer to Wholesaler.

The net price paid to growers per box of first grade fruit, and the cost build-up due to Banana Board expenses, are shown in Table 6.

Although packing, transport and ripening costs to the grower increase each year, the net payment to him also increases, due to the higher prices paid by Wholesalers. The Board itself is a non-profit making organisation that funds itself and other commitments from the collection of levies.

TABLE 6.

		1979/80	1980/81
Mean Payment to Grower (R)		3,32	4,11
Board Deductions	Transport	0,93	0,95
	Container	0,71	0,81
	Levies	0,22	0,25
	Ripening	0,34	0,40
Mean Payment by Wholesaler		5,52	6,52

BANANA RESEARCH

The Banana Board does not conduct research into banana production, and this function is carried out by the department of Agriculture. A summary of current research projects is as follows :

Horticultural Aspects.

a) Cultivars and Selections.

Comparison of Williams with 2 local selections; assessment of the imported cultivars Valery, Grand Naine, Americani, and the Canary Islands strain of Dwarf Cavendish, from the viewpoints of panama resistance and horticultural suitability ; comparison of old line and tissue culture - raised plants of Cavendish and Williams.

(b) Tissue Culture.

Research into the growing medium and techniques required to multiply bananas from small meristem and sub-meristem cultures. Objectives are rapid multiplication and screening of viruses.

(c) Crop Timing Studies.

Comparison of times of planting, dates of first follower selection, and spacing for Williams (Burgershall and Levubu). The objectives are to avoid winter problems of November dump, shorten the cycle time, and exploit the highest-paying pools more effectively. Ancillary work includes a comparison of bits and suckers planting material of different sizes.

(d) Plant Populations.

Comparison of eight different populations for Williams ranging from 1 000 to 2 200 plants/ha, and three different spatial arrangements (rectangular, hedgerow and tramline). Objective is to evaluate the optimum balance between yield per cycle and cycle interval i.e. yield/ha/annum. Ancillary work includes a comprehensive phenological comparison between Williams and Dwarf Cavendish, at two plant populations (Burgershall, Levubu and Natal).

(e) Irrigation.

Comparison of four levels of depletion of available moisture, on yield, quality and cycle time of Williams (Levubu). Also the effect of irrigation systems, namely, underhead sprinklers, microjet and drip. Objectives are to compare light frequent irrigations with heavy infrequent applications, and secondly, to compare water use efficiency of the systems by calculating yield per unit volume of

water used. Ancillary work includes the assessment of moisture stress initiation in the banana by means of leaf water potential, diffusive resistance and soil moisture tension.

(f) Nitrogen Fertilisation.

Comparison of different quantities of nitrogen in relation to yield/ha, cycle time, bunch mass, finger size, and certain physiological disorders. This is repeated on clay soil (Burgershall) and sandy soil (Natal Coast).

Pathological Aspects.

The main problem is Panama wilt and this is being investigated in terms of selecting resistant cultivars, fungicide chemical control, fumigation, evaluation of methods of spread and infection.

Entomological Aspects.

Minor projects have been conducted on control of burrowing eelworm, slugs, thrips and mites. The main centres for banana research are the Burgershall Research Station, and Levubu experimental farm, which are substations of the CSFRI, Nelspruit. Co-operative trials are also conducted with farmers on the Natal South Coast.

References used in this article were :

1. Bananas in South Africa - Banana Board, 1976.
2. Banana Board annual report for the year 1 July 1980 to 30 June 1981.

