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PROCEEDINGS
OF THE
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VOLUME V

The Banana Industrie in Surinam — I. Chs. da Costa

Introduction

Banana cultivation for export is not new for Surinam. In the past several attempts have been made to introduce such,

The first effort dates from 1906—1914, in co-operation with the United Fruit Co. Panama disease interfered and revival with a Cavendish variety was not possible because of the withdrawal of the U.F.C. and lack of finances.

A second effort was made in 1930—1940. Extensive experiments proved the technical and economical feasibility but this time the second world war intervened.

In 1946 new plans were geared in but these were cancelled, initially of lack of capital, later because the Dutch Company that took over demanded a guarantee for the provision of 4000 labourers from the Surinam Government, which was refused.

Since 1958, for the fourth time, increased attention has been paid to the development of a banana industry in Surinam. This was supported by the following considerations:

- a. Surinam's production and export of agricultural produce consisted mainly of rice. The rice crop gives the farmer a low income and causes seasonal unemployment. A banana industry would broaden the basis of agricultural production and export; provide employment (population growth 4% per annum) and increase the small farmers income.
- b. Research and experiences during the 1930—1940 period were such that, with irrigation and good disease control, our soils were moderate suitable for bananas with productions of about 15 tons per ha per year, during 4 to 6 years with the Cavendish variety Congo (=Robusta, Poyo).
- c. There would be enough place in the „world-market sun” for a Surinam banana production.
- d. Once a banana industry would be established, foreign capital would be attracted to be invested in banana cultivations.

Planning and development

It was clear that to succeed in developing a banana industry, this would have to be done with careful planning and coordination of research, growing of propagation material, location of producing areas, training of personnel, extension work and studies of transport and marketing.

It was also clear that a banana industry could not be started completely on small farms, but that it was necessary to promote the establishment of one or more larger banana farms around which a small farmers' area could be developed. The farms should function as a nucleus of

services and extension and should be planned near existing population centres, in areas with enough fresh water for irrigation and with nearby shipping facilities.

In 1958 a Pilot-farm of 80 ha was started in the Nickerie district in which the research, technical as well as economical, was concentrated. Also a nucleus-farm, Santo, was established in the new Santo-Boma polder very close to Paramaribo.

A report was presented to the Government in 1962, based on the results of the Pilot-farm and the nucleus-farm Santo, in which the economic feasibility of a banana industry was pointed out and the desirability to urge its development.

It showed that, due to considerable higher productions than on which former plannings had been based (15 tons/ha/year), the minimum acreage to secure regular shipments, could be much smaller viz. 1200 ha.

To achieve this a plan was offered to the Government, embodied in the mentioned report, with estimated cost of Sf2.800.000 in 1963 and Sf2.600.000 in 1964. It was proposed to the Government to provide the capital only as far as this would not result from private investments. The report was accepted and this meant a direct start for the industry.

The present situation in acreage and export

The following farms are established with a total acreage of 1866 ha of which around 1400 ha planted, of which 1050 ha in production. Planting goes on and it is to be expected that by August 1968 the total acreage will be planted.

Nickerie-district

Pilot-farm	80 ha
Queen Julianapolder	385 „
Surbaco-farm (private Co)	190 „
Nickerie II-farm	450 „
	<hr/>
	1105 ha

Near Paramaribo

Santo-farm	89 ha
Small farmers Santo	100 „
Boma-farm	137 „
Jarikaba I-farm	255 „
Jarikaba II-farm	180 „
	<hr/>
	761 ha

Export

Export started in the early beginning with the production on the Pilot-farm and the Santo-farm. Line freighters with reefer accomodation of the Royal Dutch Steamship Co were used with a capacity of 240 tons a month only.

From March 1965 on, regular shipments were possible with banana reefers provided by the UFC after a 5 year contract was agreed upon with this company which secures Surinam to sell all produced bananas of a certain quality. This quantities exported were (in tons):

1962: 1600	1965: 11.000
1963: 2100	1966: 13.000
1964: 1900	1967: 25.000 (expected)

During the last three years all fruit exported was boxed. Until now, shipments have been on a 14-days-cycle (850 tons) to be changed in the neare future to a 10 days-cycle. By August 1968 it is to be expected to ship once every week with bigger capacity ships.

Brief description of soil and climate

The soils on which bananas are produced are swamp-soils consisting of heavy marine-clay with a shallow top soil of organic material the so called „pegasse”. The clay-soils of young empoldered swamps have a blueish-gray soapy appearance, with a pH too low from what is generally considered optimal and a low draining-and waterholding capacity. Deep drainage improves these soils and accelerates the ripening. With these soils it is necessary to plant on beds (6 or 8 m) with trenches of 75 cm deep, draining into deeper canals every 100 m.

The climatic conditions are also not optimal for banana production. Rainfall is around 2300 mm year, however not evenly spread. There are two dry-and two-wet seasons. The conditions are favourable the year around for the development of the *Cercospora* disease, an even optimal during the dry seasons because of the heavy dew formation during the night and early morning hours.

The temperature is another factor favourable for the development of *Cercospora* disease. This average 24H temperature around Paramaribo is 27°C!

Brief description of the culture

General

a. Circumstances in Surinam are certainly not optimal for banana culture. Constant attention to all measures for soil improvement, water control, mat to mat care, and disease control, are indispensable to achieve good productions. With these factors well in hand, it is possible to obtain productions that are higher than in many other producing countries. High productions are a must as the investment per ha is high, around Sf4000.— Sf5000 ha for the bigger farms. A cost raising factor is that all bananas are produced on empoldered swamp soils.

b. Variety, density and seed treatment

The variety planted is the Congo (= Robusta, Poyo) which in extensive trials proved to produce more than twice as much as Lacatan. The density is 2000 to the ha in two rows on 6^s and three rows on 8m beds.

Special attention must be paid to plant nematode free seed. *Radopholus similis* does occur in Surinam, newly empoldered swamps are free from this nematode. All seeds carefully cleaned and dipped in

hot water, 60°C for 15 minutes. Dispersion of nematode in the heavy clay is little.

c. Irrigation and drainage

Irrigation is necessary during the two dry seasons and is done by trench irrigation or by mobile sprinklers. During the rainy seasons surplus of water is pumped out into bordering swamps or into a drainage canal

d. Mat to mat maintenance

Pruning is an important factor in mat to mat maintenance. Only one bearing tree per mat is allowed.

All trees are detashed regularly which helps to keep shipping rots low. Every bunch is deflowered in the stage where the fingers are in a horizontal position. In this stage there is little or no latex flow and, as the fingers are in a horizontal position, the latex that does come out, drips off and does not stain the fingers.

At the same time the false hand, the first small hand and the male bud are broken off.

This adds weight to the bunch and results in longer fingerlength. Trials with bagging of the bunches with plastic tubing will start soon. It is expected that bagging will improve the quality of the fruit, less insect damage etc.

e. Internal bunch transportation

All new farms are equiped with aerial cableways which bring the bunches into the boxing stations. The Santo and Boma farms have a road system and use lorries. Unnecessary to say that transportation by cableway is ideal.

f. Packing, quality control and shipping

At the boxing station the bunches are dehanded and proper care is taken to reject all hands that are not allowed for export. Quality control starts in the field with the mat to mat maintenance and disease control. Fields lacking this maintenance will give a high percentage of rejects in the boxing station. All hands are dipped before packing in a maneb instant dip. The boxed fruit is transported by trucks to the harbour and stored until the ship arrives.

The time between harvest and cooling of the stowed fruit is maximal 36 hours.

g. Productions

These differ from farm to farm and are in the range from 25 to 35 tons per year, with average bunch weights of 18—23 kg.

h. Pests and diseases

These are, generally spoken, of minor importance with a few exceptions. Of minor importance are: **Bee bite**, round black scars, usually along the ridges of the fingers, caused by small stingless bees. **Caterpillar scab**, injury to the peel caused by feeding activity of **Arctiid** and **Fortricid** caterpillars. Leaf eating caterpillars,

Ceramidia viridis, under (biological) control. Banana borer, *Cosmopolites sordidus* is present but hardly ever seen.

Thrips injury, a pimplelike growth on the peel of the finger rasplike to the touch, cause, oviposition marks of the flower thrips *Frankliniella parvula*. Speckling, a fungus infection caused by *Deightonella torulosa*. Brown spot, caused by a *Cercospora* sp.

Of major importance are: Nematodes, *Radopholus similis*, see under seed treatment. **Beetle mark**, oval scablike lesions on the peel caused by feeding of the beetle *Colaspis hypochlora*.

Fruit spot (Johnston Fruit Spot) a fungus infection caused by *Piricularia grisea*. **Red rust**, injury to the peel caused by feeding activity of thrips.

Cercospora disease, is the disease that troubles us most. It is already stated that we have a year around disease pressure. Oil-in-water-maneb emulsion is used, roughly on a 14 day cycle. In the future possibly on 16—19 day cycle.