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AN EXPERIMENT INTO THE STRUCTURE AND ORGANISATION OF MARKET GARDEN PRODUCTION

SWEET PEPPERS-EGG PLANT EXPERIMENT IN MARTINIQUE

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For several centuries, Martinique has had a mono-culture or bi-culture regime. The country depended on the outside for its stock; this state of affairs increases the disequilibrium of the commercial balance in normal times and presents problems in periods of crisis.

At all times, the Authorities, aware of the risks brought about by this situation, have been forced to develop food and garden production in the island.

Before the abolition of slavery, the Royal Administration intervened for several centuries in order to assist the colonists to maintain food cultivation.

Indication of a planter's wealth at the time was the number of slaves he had. Taxes were fixed per slave.

The Royal edicts imposed successively the following: "50 plots of cassava per servant (Royal Ordinance of 6th August, 1724)", 25 hands bananas per slave (Ordinance of 7th September, 1736) and a cart of potatoes for every thirty slaves ....."

In reality, these measures were mainly applicable during the war when communication with the outside world was difficult, but when peace returned, the control slackened and the planters continued their former errors.

After the abolition of slavery, a "food-producing area" was established at the end of the last century at the edge of large cultivations in areas 150 to 350 metres in altitude. This "food-producing area" comprised of small cultivations, was dedicated to the origin of subsistence economy from which it departed gradually.

In 1895, it was estimated that the area under food production was about 17,000 hectares. But their importance was to decline. The areas, reserved for these productions was less than 3,500 hectares at the end of the Second World War.

DIFFICULTIES IN FOOD AND VEGETABLE PRODUCTION IN MARTINIQUE

The regression of market garden production is attributed traditionally to technical and economical reasons.

Technically, the difficulties arise from the malignancy of parasitic attacks (nematodes, bacteria, viruses)—from the absence of organic manure—and also from the producer's lack of technical knowledge.

Economically, the obstacles arise principally from our insularity and the difficulties of marketing of perishable food products on a limited market.

Their causes are well known—they have been described at length at different intervals, notably at meetings held under the auspices of the former Caribbean organisation. Besides, several reports of our Society have already treated certain aspects of the problems.

To this first series of "recognised" obstacles, are added more recent ones particularly relating to Martinique.

The progressive alignment of French dependents from overseas on the economic and social policy of France has brought a sensible growth of accomplishment and standard of living of the population even independently of the effects of population pressure.

Very careful studies have shown that family consumption has increased by 7.86 per cent per person from 1961–1963 in the dependents of Martinique, Guadeloupe and Reunion.

The eating habits of the population have been changed. Potato tends to be substituted for root vegetables even in the country. These changes are increased and facilitated by the frequency of aerial and sea links with France and Europe.

The following is a list of the changing rate of the importation of fresh vegetable for 10 years:

1959	...	3,578 tons	2,442,000F
1960	...	3,995 tons	2,590,000
1961	...	4,264 tons	4,264,000
1962	...	4,416 tons	3,330,000
1963	...	5,818 tons	3,841,000
1964	...	6,485 tons	3,830,000
1965	...	6,868 tons	4,630,000
1966	...	6,723 tons	4,860,000
1967	...	6,944 tons	5,850,000

The rapid growth of imports has led the Administration to establish from 1965 a system of subsidies per hectare to encourage local market garden productions.

The actual rate of these subsidies is:

Tomatoes	...	400 F per hectare
Carrots	...	200 F do.
Sweet Potatoes	...	100 F do.

The amount of money allotted for this purpose is in the range of 200,000 F per year ($40,000 US.).

These measures have had the effect of stabilizing partially the rate of growth of imports from 1965.

But from every evidence these encouragements are palliative, the effects of which are not negligible but which do not bring the necessary changes. Furthermore, their maintenance in the body of the common market can present problems when all the agricultural classes are applied.

NEW DIRECTIONS

The analysis of this situation had led the Commission Locale of Martinique to propose for the Veme Plan of Economic and Social Development new solutions for this sector of agriculture.

The main idea is no longer to seek at any cost, and at all times to cover the local needs, but to favour for market products a current of alternate exchanges with Metropolitan France and eventually with other European countries.

It is a question of exporting to Europe during the dry season (December to May) vegetables of the first type which benefit from prices which are relatively increased. On the other hand, there would be recourse to importation during the rainy seasons which correspond to the season of great market garden productions in France and Europe.

The frequency of links with the mother country whether by steamers (especially banana boats) or by air facilities the realisation of such exchanges.

It is anticipated to avoid in this way the inconveniences resulting from the small size of the local market and to create currents of new exchanges.

CONDITIONS TO BE RECONCILED

A primary study of the legume market in France at the first meeting indicated that the proposed plan could be realised if the following conditions were met:

Production of vegetables of prime quality which could cover the expenses of transport and handling between Martinique and France.

Furnishing of a regular minimum tonnage in order to obtain from mari carriers a place in the cold storage for transporting vegetables.

Appearing on the market at a time when products from North Africa do not arrive in great number.

Choosing types which are not susceptible to serious competition by productions obtained in standard green houses or plastic shelters.

Producing vegetables of irreproachable quality intended for "clientele de luxe" which implies uniform grading and installations of air conditioning.

Marketing these products in such quantities that can be readily sold at prices which can, cover the expenses of production, transport and air-conditioning. This involves the acceptance of proper organisation in order to start a market organisation during a given period.

Organising production serving as commercial imperatives as stated above, which necessitates an organisation relatively strict with special emphasis on the following points:

supplying of plants to producers;
phtosanitary control;
preparation;
outflow of products.

To obtain these results, the producers were led to create a "Societe d'Interet Collectif Agricole Maraichere et Fruitiere" whose work extends throughout the island.

Within this Society, known as "SICAMA" are incorporated groups and supporters of individual title. It actually contains about 1,100 members.

After several trials, the choice of two species was made: sweet peppers and egg plant.

Careful studies have shown that there was a place to be taken between the end of exportations from the late season from North Africa (beginning of January) and the massive arrival of early produce from Morocco and from the South (end of May) provided that impeccable merchandise is presented at all times and delivery

is made to avoid upsetting the delicate market of early produce by badly spaced arrivals.

To develop this plan, SICAMA has obtained subsidies to realise notably a "Grading" Station and to plan nurseries.

TECHNICAL ORGANISATION OF PIMENTO-AUBERGINE OPERATION

This operation was organised to serve very precise commercial objectives. These objectives were voluntarily limited to 1,500 tons.

The organisation has undertaken:

The planning of collective nurseries.

The delivery of plants of varieties corresponding to the market preferences, the control of pests and diseases of the plantations and the most important cultural works.

The reception, grading and packing of produce.

Their shipment to Metropolitan France according to schedule allowing them to avoid the ill-timed current variations of the course.

(*a*) *The planning of nurseries*

The installation of a collective nursery has been one of the essential preoccupations of the Group of Producers. The first nursery was planned on an area of two hectares completely steam sterilized. This first nursery is actually insufficient to cover the needs of plant chosen by the Organisation.

Other installations of this type will be installed under the control of technicians recruited fulltime.

(*b*) *Delivery of plants*

The Nurseries are concerned with the purchasing of plants before the first of September. The deliveries are effected initially in boxes from 30 cms. in height, 40 cms. width and 60 cms. in length. Each box is capable of holding 800 sweet pepper plants and 400 egg-plant plants.

On their arrival on the plantation, the boxes are immersed up to the level of the first leaves in a fungicide bath.

(*c*) *Cultivation concern and antiparasitic treatments*

Management of the cultivation do not present special problems.

In order to lower the cost price, SICAMA places at the disposal of its supporters various bits of machinery, lent by the Administration to effect certain works.

The planting out and spreading of manure are increasingly being done by a special planting machine used in France for the planting out of tobacco. This machine has adapted very well to local conditions of production and permits the obtenance of plantations remarkably homogeneous whose spacing permits the use of a whole range of tools adopted to local conditions.

The first antiparasitic treatment consists mainly in spraying the fungicide solutions with a base of T.M.T.D. (products of the Dithiocarbonate Group) and

very effective against fusarium; these solutions are frequently augmented by a pesticide (Dipterex type) (organic-phosphoric insecticide). Subsequently spraying with T.M.T.D. is replaced by treatments with oxychlorures.

These treatments are supervised by a technician of SICAMA.

(*d*) *Reception and grading crop*

A grading station for fruits and vegetables has been set up in the St. Pierre region.

This station has been snbsidised 100 per cent by the Ministry of Agriculture. It handles sweet peppers and egg plants during the first part of the year and avocadoes during the second part.

Deliveries to the station are "programmed" to allow regular functioning of the establishment while avoiding slow periods followed by a rush of merchandise with all that it causes like difficulties notably in storing produce.

Selection is done on the arrival of the produce to the station. Unexportable ones are eliminated.

All these operations are organised in a way to co-ordinate the operations of transport, grading, storage and shipment.

(*e*) *Shipments*

They are generally done by banana boats and exceptionally by air cargo of the pelican type.

SICAMA has been able to obtain a "special cold storage set" on the banana boats.

Shipments take place in initially twice weekly. Work in the fields and at the station is consequently organised to suit these.

The cultivations and shipments from Martinique have been done to spread out the delivery and to limit them to at least 100 tons weekly in order to keep the recommendations of the study of the Market.

Actually, it seems that this tonnage could be surpassed, taking consideration of the new commercial circuits which have been established.

RESULTS OBTAINED

The operation Sweet Pepper-Eggplant was started experimentally toward the end of 1966 with small shipments.

The total area devoted to export was raised from 33 hectares for the first trial to 90 hectares for 1967–1968 operations. It is expected to reach 150 hectares by 1968–1969 with emphasis being given to sweet peppers.

(*a*) *Results of Operations*

In the trials, yields were of the order of 10–15 tons for Peppers using the variety "California Wonder" or "Calwonder" and 35–40 tons for Eggplants using the variety "Pompano Market"—there was much discussion concerning the choice of these varieties above others especially with regard to the variety of Eggplant. French taste prefers round plants rather than American types.

The collective nursery has fulfilled its role very well. They were able to satisfy the plant demand in good time. From the point of view of pests and diseases these were kept under control as expected, as far as bacterial and virus diseases were concerned. Bacterial attacks on those solonaceons crops is certainly one of the limiting factors of cultivation in our territory. The problem of resistant varieties is one which must get high priority in research programmes.

In the packaging plant, the actual installation method at our disposal is already inadequate having regard to the area carmarked for cultivation in 1968–1969, it will be necessary to have installation capable of treating 5 tons of vegetable per hour instead of 1 ton per hour.

Moreover, cleaning of vegetables left a lot to be desired—the vegetables remained wet when they were harvested during rainy weather and their keeping qualities could not be assured, it would be necessary to bring our equipment up-to-date in order to be able to supply these vegetables in top class condition regardless of the weather.

Briefly, the plan of operation proved quite satisfactory altogether. It is therefore necessary to bring up-to-date the materials and equipment of the packaging plant. Finally, bacterial diseases pose a difficult problem and the particular solution for this is not evident.

(*b*) *Results of the economic aspects*

From market studies, objective of the operation for 1967–1968 was fixed at 1,500 tons between the end of January and the end of March.

Shipments from the plant for the period at the rate of 15 tons per week at first and then at 50–60 tons per week to reach 85 tons in the middle of March.

Exports were slightly lower than anticipated, about 1,200 tons instead of 1,500 tons.

Anticipated prices were obtained on the whole and the operation can be considered as a success.

Nonetheless, such an operation entails high risk and must be approached carefully.

In fact, the operation has been experiencing market difficulties because of the shipments from Cuba. Because of this prices of sweet peppers dropped from 4.20 F to 2 Francs per kilogram.

Very fortunately for the local producers these Cuban shipments were of poor quality. Prices for Martiniquan sweet peppers have eventually levelled off at a new level which compensated for handling and production costs.

This was a warning to us that even in a country like Metropolitan France, in order to obtain high prices, the price for high quality is elastic and reacts unfavourably to producers when a certain tonnage is surpassed. In spite of the various difficulties, the Martiniquan quality has been appreciated. Correspondence from commercial houses lead us to hope that little by little we will be able to increase our quantities on the market at a good price.

On the local scene the promotors of the Vème Plan considered that a well organised and skilled market gardening sector is a pilot for other crop production schemes, and in particular, all those destined for local consumption. In fact, there

was no confirmation of this anticipation. The sweet pepper-egg plant experiment had no appreciable effect on the local market which remained as before very limited.

Summarizing, in spite of the viability of this type of speculation, one cannot anticipate a rapid and improved development as the promoters of the Veme Plan had anticipated.

In conclusion, the difficulties of high degree and commercialisation of production of perishables on a small market is undoubtedly due to the smallness of the markets and population of the area. These difficulties are particularly manifest in a small island like Martinique.

The solution lies in aiming at production of fresh vegetables for export during months when the demand is high and ship and air transport is available.

The success of such an enterprise implies integration of marketing, packaging and production.

The operation sweet pepper-egg plant attempted in Martinique was a general success but had a limited effect on the overall economic plan.

It is not necessary to actually point out the very rapid and improved development in truck gardening for export. The market for fresh produce in France is in fact restricted. It was demonstrated that it was very elastic in choosing each type of vegetable. It has shown so far little elasticity for demand for the chosen types. Variation in prices were often brutal. The produce presented must be of first-class quality. So far all the technical problems have not been resolved in a satisfactory manner.