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## THE ACTIVITIES OF THE CIRAD IN MARTINIQUE

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### ABSTRACT

The nature of the various research programs of the French international agricultural research agency CIRAD in Martinique is outlined. Two institutes of CIRAD function on this island: IRAT on food crops and IRFA on fruits. The resources available are listed briefly. To complete the description of the stations, the levels at which they intervene, their resources and their locations in Martinique are given. The main programmes of IRAT concern: phytotechny (crop production and improvement), selection, entomology, bacteriology and protected cultivation. IRFA works on citrus fruits, pineapple, banana and plantain.

### INTRODUCTION

The CIRAD (Centre for International Development Cooperation in Agronomy Research) has two departments in Martinique: IRAT (Tropical Agronomy and Food Crops Research Institute), the CIRAD food crops department; IRFA (Fruit Research Institute), the CIRAD fruit department.

#### The Activities of IRAT in Martinique

The IRAT agency in Martinique has a research station in the centre of the island, in Lamentin, called "Petit Morne Station". The soils are ferrallitic and the rainfall is 2,000 mm per year. It has offices (150 sq.m.), a laboratory (50 sq.m.), cold storage rooms (8 cu.m.), and an experimental plot of 7 ha.

Six programs are underway, being conducted by a team of six researchers, with the help of three technicians, 6 assistants and a technical and administrative secretary:

1. Phytotechny (crop production and improvement). Geared to food crops: yam, the selection of varieties of cucumber, the selection of varieties of cabbage suited to high temperatures, and the perfecting of control measures against Plutella xylostella in cabbages.

2. Alao, a phytotechny program dealing with vegetable crops which are mostly imported -- carrots, kidney beans and onions. In addition, work is being done to produce healthy tannia (Xanthosoma sagittifolium) seedlings for farmers.

3. A program to improve the onion began in 1984 with the aim of obtaining a plant suited to a humid tropical climate.

4. A program on soil-less sheltered cultivation in progress for four years, concerns the choice of varieties suited to this very special type of cultivation, research on a production and multi-purpose tropical greenhouse, and the improvement of irrigation and feeding methods.

5. A recent program has been initiated on Thrips palmi (Karny), which attacks vegetable crops. This program is mainly geared to the perfection of control techniques suited to the different soil and climatic conditions in Martinique.

6. A breeder is concerned with two species, the tomato and the eggplant. They both have to be resistant to bacterial wilt (Pseudomonas solanacearum). In addition, for the tomato, adaptation to the heat is being sought as well as a good quality fruit (firmness, color). The eggplants must satisfy the needs of the European market. For this program, the breeder is aided by a bacteriologist who is working on various identification and epidemiological problems related to the bacteria of Solanaceae.

All this work is being done on three levels:

- in the tightly controlled environment of the laboratory,
- in the controlled environment of the experimental research station,
- in the real environment of the farms.

The work is being carried out in close cooperation with the professional organizations who have requested it and who will use the results of the research, and with the agricultural development and training organizations.

IRAT is expanding its work to cover the whole island, whether it be done in a zone of heavy rainfall in Morne Rouge in the north, or on the clay soil of Sainte Anne in the south. Finally, all the research is carried out in collaboration with the other French research institutes in the Caribbean - the French West Indies-French Guyana Research Centre in Guadeloupe (INRA) and the International Tropical Agriculture Center (CIAT) in Colombia, as well as with the support of all the CIRAD research centers in the whole tropical zone, in Sudano-Sahelian Africa in particular, and in Montpellier, France.

#### IRFA's Work in Martinique

The role of IRFA is to conduct applied agronomic research on tropical fruit trees; increasing the yields of cultivated fruit trees; promoting fruit diversification. It also has a pre-development - training role. IRFA's objective is to provide fruit growers in Martinique with the scientific and technical basis necessary for development.

The Moutte Centre in Fort de France, composed of an office, a multi-disciplinary laboratory (soil lab, mycology, nematology, physiology), propagating greenhouses, cold storage rooms.

The Rivière Lézarde Experimental Station (Saint Joseph parish) of 387 acres, of which 187 are planted in fruit trees.

- Agronomic experiments with bananas, citrus fruits and passion fruit.
- Genetic reserves for pineapples, pawpaw, bananas, guavas, mangoes and less commonly grown fruit trees.
- Full-scale agro-economic models for bananas and limes.
- Nurseries for propagating fruit trees.

- Other research plots: SECI (Station for the study of irrigated crops in Sainte Anne) and private fruit farms in Martinique.

#### The 1988 research programs

##### Citrus fruit program:

- Plant improvement. A collection of 160 varieties, the clonal selection of limes, stock trials.

- Plant physiology. The flowering mechanism, improving the colour of the lime.

- Quality. The influence of the stock, period between flowering and the maturing of the fruit.

- Technical aspects. Preparing plots, treating the soil.

- Crop protection. Fight against the lime weevil, pesticide residues.

##### Pineapple program:

- Plant improvement. Prospecting for parents, the genetic reserve, adapting hybrids, producing hybrids.

- Plant physiology. Study of the root system.

- Technical aspects. Study of crop rotation, crop residues, herbicides.

- Crop protection. Fight against black spot.

##### Banana and plantain program:

- Plant improvement. Plantain selection.

- Plant physiology. Action of fertilizing elements.

- Technical aspects. A study of vitroplant vegetable matter, the homogenisation and focusing of production, high density cultivation, irrigation, working the soil.

- Crop protection. Banana weevils, nematodes, Sigatoka disease.  
Bioecology: Study of the microflora and nematofauna in the soil-root complex.

- Scientific collaboration. INRA Guadeloupe and all the research centres working in tropical areas.

The programs are decided on jointly with the users of the research results, the fruit farmers and the public and private bodies involved in fruit development. The results are published locally: annual report, technical notes in monthly bulletins of the professional bodies. A monthly review "Fruit" is produced.