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RESOURCES FOR AGRONOMIC RESEARCH
IN THE FRENCH ANTILLES AND FRENCH GUIANA

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ABSTRACT

This paper presents a summary of the missions and capabilities of French institutions involved in tropical agronomic research related to crop and animal production and allied fields in the Caribbean region. INRA has been dealt with earlier. Subjects covered include agricultural engineering, irrigation; a broad range of tropical agricultural research and policy issues; sugarcane; forestry; animal science and veterinary medicine; marine fisheries and aquaculture; rubber; coffee, cocoa; cotton and other textiles; "new" fruit crops; ethnobotany; and various basic research fields. It is hoped that this information will help our partners working in other Caribbean countries to be informed about the these resources and institutions, and that increased cooperation for the development of Caribbean agriculture may result.

INTRODUCTION

The Caribbean countries have many ecological, agricultural and cultural similarities but, because of their historical and political evolution, which has been more or less different, because of their insularity (even the three Guianas can be considered as insular because of their difficulties of physical communication with their neighbors!), and because of the language barrier, too often we do not know each other well enough.

Information circulation is a necessary element in cooperation and development. This is particularly true for agricultural research which is an expensive and complex sector of activity. In this field, cooperation is more and more necessary, for instance, to avoid pointless duplication and to save research resources.

During a previous CFCS meeting (Saint Lucia, 1986), the INRA Centre was described by Guy Anais, President of this Centre. The information in this paper concerns itself with non-INRA francophone (French-speaking) institutions of the region, and is subject to revision because we had some difficulties in getting the primary information. However, we hope it will help our partners working in the other Caribbean countries to be informed about these resources and institutions, and eventually to establish cooperation for the development of our Caribbean agriculture.

In this paper, we adopted the scope of the AGRIS-CARIS subject categorization scheme (FAO). AGRIS is the International Information System for fields in the agricultural sciences and technology. CARIS is the Current Agricultural Research Information System.

CEMAGREF

National Centre for Agricultural Mechanization, Rural Engineering, Waters and

Forests

(Centre National du Machinisme Agricole, du Génie Rural, des Eaux et des Forêts)

CEMAGREF Overseas Group (Northern Hemisphere)

CEMAGREF

B.P. 694
97262 Fort de France Cedex
MARTINIQUE, French Antilles

Tel.: (596) 51.09.79/51.22.74
Telex 912 304 MR

The Overseas Group has only one division, "Overseas Animal Husbandry". The husbandry problems studied include:

- Forage production with or without irrigation;
- Study of production systems and production costs;
- Technical advice for agricultural administrative and professional structures (in collaboration with the INRA Centre for French Antilles and Guiana and SECI);
- Projects of biomass improvement (in collaboration with ONF and Martinique CTCS).

CIRAD

Center for International Cooperation in Agronomic Research for Development (centre de Coopération Internationale en Recherche Agronomique pour le Développement).

The predecessor agency, GERDAT (Group of Studies and Research for the Development of Tropical Agronomy = Groupement d'Etude et de Recherche pour le Développement de l'Agronomie Tropicale), was dissolved in December 1985.

The CIRAD was created by a decree of June 5th, 1984.

The CIRAD departments working in the French Antilles and Guiana will be presented further.

The CIRAD representations in this area are:

CIRAD

Agence de la Guadeloupe
Station IRFA
Sainte Marie
97130 Capesterre Belle Eau
GUADELOUPE, French Antilles
Tel.: (590) 86.30.21
Telex: 919 121 GL

CIRAD

Agence de la Martinique
Mission IRAT
B.P. 427
97204 Fort de France
MARTINIQUE, French Antilles
Tel.: (596) 51.45.67
Telex: 912 864 MR

CIRAD

Agence de la Guyane
B.P. 60
97300 Cayenne
GUYANE FRANCAISE (French Guyana)
Tel.: (594) 32.04.30
Telex: 910 323 FG

One of the main interests in grouping the autonomous French tropical research institutes within a larger structure as the GERDAT and then the CIRAD has been to coordinate the policy of the French tropical agricultural research and to strengthen the research resources and potentials.

CTICS

Technical Centre for Sugarcane
(Centre Technique Interprofessionnel de la Canne à Sucre)

CTICS Guadeloupe
B.P. 397
97162 Pointe-à-Pitre Cédex
GUADELOUPE, French Antilles
Tel.: (590) 82.94.70

CTICS Martinique
B.P. 57
97232 Le Lamentin
MARTINIQUE, French Antilles
Tel.: (596) 51.28.08

The main objectives of these two CTICS are applied research and extension activities on behalf of sugar cane growers (individual farmers, cooperative organizations, etc.).

Their main activities are oriented around:

- Variety trials and selection with respect to factors such as irrigation or drought resistance, disease resistance, mechanized harvest techniques, pest and weed control, sugar quality (content);
- First generation nurseries for newly selected varieties;
- Economic studies on sugar cane;
- Technical operations of sugar content of sugar cane harvests;
- Improvement of rum production technology.

The main collaborators of the CTICS are the administrative agricultural services, INRA Centre for French Antilles/Guiana, and CIRAD.

CTFT (part of CIRAD)

Technical Center for Tropical Forestry (Centre Technique Forestier Tropical)

Center Technique Forestier Tropical
Station de Guyane
B.P. 116
979310 Kourou
GUYANE FRANÇAISE, (French Guyana)
Tel.: (594) 32.04.30
Telex: 010 323 FG

Forest and forestry research:

- Silviculture: exploitation and management of forests;
- wood studies: anatomy, physical and mechanical properties, preservation and technology;
- Soil research and conservation: effects of the transformation of the Guianese forest ecosystem (ECEREX integrated project).

Main collaborators: INRA Centre for French Antilles and Guiana (particularly in the soil and forest sciences), ORSTOM.

IEWVT (CIRAD)

Institute for Animal Production and Veterinary Medicine in the Tropics
(Institut d'Élevage et de Médecine Vétérinaire des Pays Tropicaux)

IEMVT

Mission de Guadeloupe
B.P. 1232
97184 Pointe-à-Pitre Cedex
GUADELOUPE, French Antilles
Tel.: (590) 25.59.47/94.23.63
Telex: 919 867 GL

The IEMVT of Guadeloupe is located in the buildings of the INRA Centre for French Antilles and Guiana, in Petit-Bourg.

Its main research activities are:

- Studies on the cattle tick (bont tick, Amblyomma variegatum): biology, ecology, eradication and the diseases transmitted or associated with the ticks (heart water disease, dermatophilosis);
- Research on the traditional cattle husbandry (analysis of the production systems), improvement trials like sugar cane feeding in collaboration with the Zootechnology Station of the INRA centre.

IFREMER

French Institute of Research for Sea Exploitation
(Institut Francais de Recherche pour l'Exploitation de la Mer)

Represents an amalgamation of former CNEXC (National Chapter for Sea Exploitation) and ISTPM (Scientific and Technical Institute of Marine Fisheries Sea Fish)

IFREMER

Station de Martinique
Pointe Fort
97231 Le Robert
MARTINIQUE, French Antilles
Tel.: (596) 65.11.54/65.11.56

IFREMER

Station de Guyane
Route Bourda
97300 Cayenne
GUYANE FRANCAISE
Tel.: (594) 30.10.69

- Study of marine resources (fisheries, aquaculture): Macrobrachium rosenbergii, saltwater fishes (Trachinotus goodei, Sciaenops ocellatus), molluscs (Perna perna);
- Husbandry pathology (in Martinique): protozoosis, bacteria;
- Sea research and environment;
- Technical advisory to Macrobrachium hatcheries and to producers; advice to the administrative sea authorities, mariculture regulatory agencies; done in collaboration with the INRA Station of Hydrobiology in French Guiana.

- IFREMER cooperates with ORSTOM and the University of the French Antilles (UAG - Université des Antilles et de la Guyane) in the Pôle of Caribbean Oceanographic and Halieutic Research (Pole de Recherche Oceanologique et Halieutique Caraïbe) particularly in the study of ciguatera toxicity in the marine shelf surrounding the islands Anguilla, Saint Bartholomew and Saint Martin.

IRAT (CIRAD)

Institute for Agronomical Research and Food Crops
(Institut de Recherches Agronomiques et des Cultures Vivrières)

IRAT

Mission de Guadeloupe
Station de Roujol
97170 Petit Bourg
GUADELOUPE, French Antilles
Tel.: (590) 95.41.53
Telex: 919 121 GL

IRAT

Mission de Martinique
B.P. 427
97204 Fort De France Cedex
MARTINIQUE, French Antilles
Tel.: (596) 51.45.67
Telex: 912 864 MR

IRAT

Mission de Guyane
B.P. 60
93700 Cayenne
GUYANE FRANCAISE (French Guyana)
Tel.: (594) 31.10.96
Telex: 910 323 FG

IRAT activities include both commodities research programs (vegetables, tuber crops, cereals, sugar cane, ornamental plants) and "horizontal" programs (study and improvement of the physical environment, of production systems, of methods and techniques such as tissue culture). Technical advice and referrals are given as to agricultural agencies and procedures.

IRAT Activities undertaken in:

1. Guadeloupe -
 - Ornamental plants: Anthurium. In vitro production of seedlings, disease control;
 - Sugar cane: Disease studies and control, resistance to Xanthomonas albilineans (leaf scald), Ustilago scitaminea (sugar cane smut), Puccinia melanocephala (rust).
 - Variety creation by tissue culture, in vitro variability, seedling production;
 - Technical advisory to CTICS.

2. French Guiana -
 - Irrigated rice: seed production, technical assistance to the rice project of Mana;
 - Upland rice: varietal creation

 - Sorghum, Soybeans: cultivation methods, mechanized growing for cattle feed production;
 - Vegetables and various plants: technical advisory for hydroponics.

3. IRAT activities in Martinique -
Studies on vegetables and tuber crops are undertaken in collaboration with the INRA Centre in Guadeloupe:
 - Solanaceae vegetables: resistance to bacterial wilt (Pseudomonas solanacearum) and plant nematodes, improvement of eggplant and tomato;
 - Insecticidal control of Thrips palmi (integrated control);
 - Selection and physiological adaptation of onion for short days;
 - Phytotechny (production and improvement) of vegetables, protected cultivation, hydroponic cultivation;
 - Yam production.

IRCA (CIRAD)

Institute for Research on Rubber
(Institut de Recherches sur le Caoutchouc)

IRCA
c/o Mission IRAT Guadeloupe
Station de Roujol
97170 Petit-Bourg
GUADELOUPE, French Antilles
Tel.: (590) 95.41.53

IRCA
B.P. 60
97300 Cayenne
GUYANE FRANCAISE (French Guyana)
Tel.: (594) 32.08.24/32.07.23
Telex: 910 323 FG

In Guadeloupe, the studies of Hevea brasiliensis concern the adaptation of tissue culture methods to tropical conditions and as production techniques. The rejuvenation of selected seedlings is also carried out.

In French Guiana, the research activities on Hevea are:

- study of the South American leaf diseases (in the field and in the laboratory);
- Behaviour collection;
- Agronomic evaluation of the clones put in collection.

IRCC (CIRAD)

Institute for Research on Coffee, Cocoa and other Stimulant Crops
(Institut de Recherches du Café, Cacao et autres Plantes Stimulantea)

IRCC
c/o Station IRFA
Sainte Marie
97130 Capesterre Belle Eau
GUADELOUPE, French Antilles
Tel.: (590) 86.30.21
Telex: 919 121 GL

IRCC
B.P. 60
97300 Cayenne
GUYANE FRANCAISE (French Guyana)
Tel.: (594) 32.04.30
Telex: 910 323 FG

In Guadeloupe, IRCC research activities concern the maintaining of their coffee collection, the exploitation of the possibilities offered by the insularity and the ecological particularities mainly in the highlands.

In French Guiana, IRCC has established a genetic resources center for Theobroma species. A study collection of Coffea species has also been created mainly for the lowlands.

Prospection (exploration), introductions and evaluations have been undertaken.

IRCT (CIRAD)

Institute for Research on Cotton and Exotic Textiles
(Institut de Recherches du Coton et des Textiles Exotiques)

IRCT
B.P. 02
997121 Anse Bertrand
GUADELOUPE, French Antilles

IRCT main activities have been the prospection of Gossypium species in the American zones and the maintenance of collections.

IRFA (CIRAD)

Institute for Research on Fruits and Citrus
(Institut de Recherches sur les Fruits et Agrumes)

This department of CIRAD is present in the three main territories of Guadeloupe, French Guiana and Martinique. In the two islands, IRFA has been doing research on the traditional export crops, which are banana and pineapple, and it has been involved also in French Guiana in research and development of "new" fruit crops in the context of agricultural diversification.

IRFA
Station de Neufchâteau
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Telex: 919 121 GL

IRFA
Station de Cayenne
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97300 Cayenne
GUYANE FRANCAISE (French Guyana)
Tel.: (594) 32.04.30
Telex: 910 323 FG

IRFA
Station de Martinique
3,5 km route de Moutte
97200 Fort de France
MARTINIQUE, French Antilles
Tel.: (596) 71.92.01 Telex: 912 864 MR

IRFA has undertaken research on many aspects of tropical fruit production: agronomy, genetics, plant protection, storage, processing, etc. It has given technical assistance to producers through, or jointly, with the production cooperatives and extension organizations. IRFA stations maintain collections for research and nurseries to help production development.

The main fruit crops studied by IRFA are: cultivars and species of citrus, avocado, passion fruit, guava, mango. Several pest (nematodes, weevils) and diseases have been studied in collaboration with the INRA Centre.

IRFA cooperates with various tropical American and Caribbean countries mainly on banana (South and Central Americas, Windward Islands) through ACORBAT, WINBAN, INIBAP.

IRHO (CIRAD)

Institute for Research on Oils and Oil Crops
(Institut de Recherches sur les Huiles et les Oléagineux)

IRHO
B.P. 60
97300 Cayenne
GUYANE FRANCAISE (French Guyana)
Tel.: (594) 32.08.24/32.07.23
Telex: 910 323 FG

The two oil crops studied by IRHO in French Guiana are coconut (*Cocos nucifera*) and oil palm tree (*Elaeis guineensis*). The heart rot disease of coconut has been studied: the vector biology, the natural centres of infection, chemical control are the main aspects of this research. Oil palm trees are maintained in collection. Their behaviour and fruit setting rate are studied.

ORSTOM

French Institute of Scientific Research for Development through Cooperation
(Institut Français de Recherche Scientifique pour le Développement en
Coopération)

ORSTOM has been conducting various types of studies in the French
Antilles and Guiana. In the context of this paper, we will not give detailed
information on the studies not closely related with agriculture, such as
demography, economy, sociology, etc.

ORSTOM
Centre de Guadeloupe
B.P. 1020
97178 Pointe-à-Pitre
GUADELOUPE, French Antilles
Tel.: (590) 82.05.49
Telex: 929 231 GL

ORSTOM
Centre de Cayenne
B.P. 165
97300 Cayenne
GUYANE FRANCAISE (French Guyana)
Tel.: (590) 30.27.85
Telex: 910 608 FG

ORSTOM
Centre de Fort de France
B.P. 81
92701 Fort de France
MARTINIQUE, French Antilles
Tel.: (596) 70.28.72
Telex: 912 024 MR

ORSTOM scientific research programs are grouped into five Departments:

- Earth, Ocean, Atmosphere,
- Continental waters,
- Agricultural environments and activities,
- Man and health,
- Towns, societies, development.

1. Earth, Ocean, Atmosphere

Oceanography (in collaboration with IFREMER and UAG - Center of
Caribbean Oceanographic and Halieutic Research - cf. IFREMER) in Guadeloupe
and Martinique. Cooperation with Barbados, Venezuela.

2. Continental waters

Hydrology: climate studies (rainfalls, weather types), freshwater
resources surveys. River hydrologic studies are undertaken in French Guiana,
Guadeloupe and Martinique.

3. Agricultural environments and societies

Agricultural zoology: sugar cane borers, Noctuidae in forage grasses,
plant nematodes, forest tree insects. Studies conducted in the three
territories.

Survey and study of the Guyanese flora, of forest environment.

4. Man and health

Study of Guyanese drug plants, ethnobotanical and phytochemical surveys.

SECI

Experiment Station for Irrigated Crops
(Station d'Essais en Cultures Irriguées)

Station d'Essais en Cultures Irriguées
Val d'Or, 97227 Sainte Anne
MARTINIQUE, French Antilles
Tel.: (596) 76.73.36

SECI was created in 1972 by the Martinique Government to undertake research and extension for every agricultural enterprise made possible by irrigation in the southeast of this island. It has had the scientific and technical assistance of CEMAGREF, CIRAD, INRA, ORSTOM, the National Meteorology Office.

SECI works with the collaboration of various extension and training organizations.

Irrigation trials have been undertaken on:

- Vegetables: Cucurbitaceae, Solanaceae, onion, lettuce, beans, okra;
- Tuber crops: cassava, yams, sweet potato;
- Fruit crops: mango, orange, limes, papaw, passion fruit, grapes, guava, sourop, sweet apple, banana, plantain;
- Forage crops: Digitaria decumbens, Panicum maximum, forage sorghum, Siratro, maize. Introduction trials of new feed crops.
- Sheep husbandry (Black Belly, Saint Martin or Creole, European breeds)