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IICA



**TECHNICAL COMMITTEE FOR
AGRICULTURAL TECHNOLOGY TRANSFER
BETWEEN LATIN AMERICA AND THE CARIBBEAN
(TECLAC)**

First Programming Meeting

PROCEEDINGS

IICA OFFICE IN SAINT LUCIA

WHAT IS IICA?

The Inter-American Institute for Cooperation on Agriculture (IICA) is the specialized agency for agriculture of the Inter-American system. The Institute was founded on October 7, 1942 when the Council of Directors of the Pan American Union approved the creation of the Inter-American Institute of Agricultural Sciences.

IICA was founded as an institution for agricultural research and graduate training in tropical agriculture. In response to changing needs in the hemisphere, the Institute gradually evolved into an agency for technical cooperation and institutional strengthening in the field of agriculture. These changes were officially recognized through the ratification of a new Convention on December 8, 1980. The Institute's purposes under the new Convention are to encourage, facilitate and support cooperation among its 33 Member States, so as to better promote agricultural development and rural well-being.

With its broader and more flexible mandate and a new structure to facilitate direct participation by the Member States in activities of the Inter-American Board of Agriculture (IABA) and the Executive Committee, the Institute now has a geographic reach that allows it to respond to needs for technical cooperation in all of its Member States.

The contributions provided by the Member States and the ties IICA maintains with its 13 Permanent Observer Countries and numerous international organizations provide the Institute with channels to direct its human and financial resources in support of agricultural development throughout the Americas.

The 1987-1993 Medium Term Plan, the policy document that sets IICA's priorities, stresses the reactivation of the agricultural sector as the key to economic growth. In support of this policy, the Institute is placing special emphasis on the support and promotion of actions to modernize agricultural technology and strengthen the processes of regional and subregional integration. In order to attain these goals, the Institute is concentrating its actions on the following five Programs: Agricultural Policy Analysis and Planning; Technology Generation and Transfer; Organization and Management for Rural Development; Trade and Integration; and Agricultural Health.

The Member States of IICA are: Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominica, the Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Suriname, Trinidad and Tobago, the United States of America, Uruguay and Venezuela. The Permanent Observer Countries of IICA are: Arab Republic of Egypt, Austria, Belgium, European Communities, France, Germany, Hungary, Israel, Italy, Japan, Kingdom of the Netherlands, Portugal, Republic of Korea, Romania, Russian Federation and Spain.

14 AGO 1994
BIBLIOTECA VENEZUELA

**TECHNICAL COMMITTEE FOR
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First Programming Meeting

PROCEEDINGS

July 11th - 16th, 1994
Mexico, D.F.
MEXICO

*Antonio M. Pinchinat
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Castries, Saint Lucia

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ABBREVIATIONS AND ACRONYMS

CARDI	Caribbean Agricultural Research and Development Institute
CARICOM	Caribbean Community
CARIRI	Caribbean Industrial Research Institute
CATIE	Tropical Agricultural Research and Training Centre
CIRAD	Center for International Cooperation in Agricultural Research for Development
CP	Postgraduate College in Agriculture
EMBRAPA	Brazilian Agricultural Research Corporation
FAO	United Nations Food and Agriculture Organization
FHIA	Honduran Agricultural Research Foundation
FONAIAP	National Agricultural Research Fund
ICA	Colombian Agricultural Institute
ICTA	Agricultural Science and Technology Institute (Guatemala)
IICA	Inter-American Institute for Cooperation on Agriculture
INIFAP	National Institute for Forestry and Agricultural Research
INRA	National Institute for Agronomic Research (French)
INTA	National Institute of Agricultural Technology ((Argentina)
IPGRI	International Plant Genetic Resources Institute
MOA	Ministry of Agriculture
NARI	National Agricultural Research Institute (Guyana)
PROCIANDINO	Cooperative Agricultural Research Program for the Andean Region
PROCICARIBE	Caribbean Agricultural Science and Technology System
PROCISUR	Cooperative Program for the Development of Agricultural Technology in the Southern Cone
PROCITROPICOS	Cooperative Program on Research & Technology Transfer for the South American Tropics
R&D	Research and Development
RISPAL	Latin American Research Network for Animal Production Systems
SARH	Agriculture and Water Resources Secretariat of Mexico
SG	Steering Group
TCP	Technical Cooperation Programme

ABBREVIATIONS AND ACRONYMS cont.

TECLAC	Technical Committee for Agricultural Technology Transfer Between Latin America and the Caribbean
TECLAC II	First Programming Meeting of TECLAC
TECLAC III	Second Programming Meeting of TECLAC
UWI	University of the West Indies
WINBAN	Windward Islands Banana Association

PREFACE

The First Programming Meeting of the Technical Committee for Agricultural Technology Transfer between Latin America and the Caribbean falls within the institutional framework of technical cooperation undertaken by Mexico with Latin American and Caribbean countries. It was hosted by the Government of Mexico, through the External Relations Secretariat (SRE) and the Agriculture and Water Resources Secretariat (SARH), with technical support from the Postgraduate College - Agriculture (CP), the National Institute for Forestry and Agricultural Research (INIFAP), and the Inter-American Institute for Cooperation on Agriculture. It was inaugurated at the Conference Unit of CP in Montecillo (Texcoco) on July 12th, 1994 and proceeded with its technical programme until July 15th, including observation visits in the State of Veracruz.

The meeting was attended by high-level representatives from eleven key institutions, based in Latin America and the Caribbean, engaged in agricultural policy, education or technology research, development and transfer. It resulted in a set of Resolutions, Recommendations, Programme of Joint Operation, and updated Cooperation Agenda, aimed at furthering technological modernization of agriculture in Latin America and the Caribbean.

The IICA Office in Saint Lucia, where TECLAC's Executive Secretariat is based, expresses sincere gratitude to all the institutions represented at the Meeting for their valuable contribution to its successful outcome.

**Guillermo Villanueva
IICA Representative in the
Eastern Caribbean States**

1.0 RESOLUTIONS, RECOMMENDATIONS AND PROGRAMME

1.1 RESOLUTIONS

1.1.1 TECLAC 12-07-94/01

Presidency of TECLAC's Ordinary Annual Meeting

CONSIDERING

The need to norm the presidency at the Annual Ordinary Meeting of the Technical Committee for Technology Transfer between Latin America and the Caribbean (TECLAC), the members of the Steering Group (SG), during their first Programming Meeting

RESOLVE

That the SG's Presidency corresponds to the official Representative of the SG-member institution of the country where the TECLAC's Annual Ordinary Meeting takes place, until the first day of the next Annual Ordinary Meeting.

1.1.2 TECLAC 12-07-94/02

Incorporation of FONAIAP into TECLAC's Steering Group

CONSIDERING

That the National Agricultural Research Fund (FONAIAP) of Venezuela has shown great interest in supporting activities undertaken by the Technical Committee for Technology Transfer between Latin America and the Caribbean (TECLAC), the members of the Steering Group (SG), during their first Programming Meeting

RESOLVE

To incorporate FONAIAP as member of the SG on this date, July 12, 1994.

1.1.3 TECLAC 13-07-94/01

Hosting of the Second Programming Meeting of the Technical Committee for Technology Transfer between Latin America and the Caribbean (TECLAC)

CONSIDERING

The invitation of the Caribbean Agricultural Research and Development Institute (CARDI) to host the 1995 TECLAC's Programming Meeting (TECLAC III), the members of the Steering Group (SG)

RESOLVE

To accept CARDI's invitation to hold TECLAC III, in Port-of-Spain, Trinidad and Tobago, 1995, on the St Augustine Campus, in cooperation with the University of the West Indies (UWI).

1.1.4 TECLAC 14-07-94/01

Institutional Arrangements for Cooperation within and between Latin America and the Caribbean

CONSIDERING

The urgency for strengthening lateral cooperation in the Caribbean in technology generation and transfer and human resource development as well as bilateral cooperation between the Caribbean and Latin America in said areas

That at TECLAC's first Programming Meeting (TECLAC II) a number of specific areas had been identified by the TECLAC participating institutions to broaden and deepen bilateral cooperation

That appropriate institutional mechanisms need to be put in place to give sustainability to these cooperation efforts and that during the development and installation of such mechanisms interim arrangements should be instituted to immediately support the agreed cooperation efforts, the members of the Steering Group

To commit the organisations participating in TECLAC II to providing support to the above process.

1.2 RECOMMENDATIONS

1.0 PROCICARIBE, once established, should be supported by IICA, through its International Cooperation Programmes and Networks in Technology Generation and Transfer, namely PROCIANDINO, PROCITROPICOS, PROCISUR, and RISPAL. PROCICARIBE will comprise the following 11 networks:

- **Vegetables**
- **Fruit and Tree Crops (including citrus)**
- **Tropical Roots and Tubers**
- **Legumes**
- **Rice**
- **Livestock (forage, pasture, by-product feeds)**
- **Germplasm Management (including Biotechnology)**
- **Natural Resource Management**
- **Integrated Pest and Disease Management**
- **Farm Machinery**
- **Post-harvest Technology**
- **Contract Research (cacao, coffee, sugarcane, banana, coconuts, ornamentals and livestock)**

It is expected to be operational in January 1995. Its Executive Secretariat will be based at CARDI. Jointly, IICA, CARDI and UWI will review the TECLAC mechanism to arrange processing of official requests for bilateral cooperation within the PROCICARIBE framework.

2.0 To secure funding, TECLAC's action should be concentrated along a few programmes, under which cooperative activities can be grouped. Consequently, the following six Technical Cooperation Programmes have been established:

- **TCP.1 Information Systems Development**
 - Organization, establishment and operation of data bases
 - Exchange of information
- **TCP.2 Training**
 - Formal
 - Informal
- **TCP.3 Exchange of Materials**
 - Germplasm (plant and animal)
 - Other technological inputs (equipment, tools, and others)
- **TCP.4 Transfer of Technical Expertise**
 - Inventory of professionals (by disciplines and work areas)
 - Reciprocal technical visits
 - Technical assistance
 - Advisory service
 - Consultancies
- **TCP.5 Technology Research/Development and Transfer Undertakings**
 - Interdisciplinary groups
 - Networks
- **TCP.6 Support to Bilateral Agreements**
 - Formulation
 - Negotiation
 - Implementation
 - Follow-up

3.0 TECLAC's programming cycle should last at least three years to allow phased implementation of joint activities. Consequently, the Programme of Joint Operation which results from TECLAC II should cover the period July 1994 through June 1997.

4.0 IICA should provide to TECLAC member-institutions a catalogue of higher-education institutions dealing with agriculture in the Association of Caribbean States (ACS) region. The information should include programme curricula and academic level of degrees granted.

5.0 For purpose of PROCICARIBE, the University of the West Indies should involve the following Faculties:

- **Faculty of Agriculture**, for agricultural production and postharvest technology as well as forest ecology and agroforestry

- **Faculty of Engineering, for Food Processing and Agricultural Engineering**
- **Faculty of Natural Science, for Aquaculture and Fisheries, and**
- **Faculty of Medical Sciences, for Veterinary Medicine and Animal Health**

The inputs of these four Faculties to PROCICARIBE will be coordinated by the Faculty of Agriculture.

6.0 The SG-6, through the Postgraduate College in Agriculture of Mexico (CP), should seek funding from the European Union to expand the scope of cooperative activities relevant to TECLAC, such as the Lomé Agreement on Human Resource Development.

7.0 TECLAC's Executive Secretariat should assist CARICOM institutions to participate in the **Continuing Education Diploma Programme** to be conducted by the Postgraduate College of Agriculture-Mexico (CP). Tentatively, the course will be offered during the second semester of the year 1995 and will last four to five weeks, programmed as follows:

- **First week**
 - **Review of agricultural sustainability concept**
- **Second to fourth/fifth weeks**
 - **Review of agricultural development policies**
 - **Lectures on trainee's specific professional area of work (e.g. fruit tree crops, management of research or extension)**
 - **Field visits related to area of work**

The CP will grant 25 scholarships, covering:

- **Airfare**
- **Room and board**
- **Tuition**
- **Insurance**
- **Miscellaneous costs**

Applicants must possess at least a first graduate degree (BSc or equivalent) and be able to read, write and speak Spanish satisfactorily. This implies that interested CARICOM institutions may have to ensure proper training of their candidates before enrolling them in the Diploma Programme.

The Agriculture and Water Resources Secretariat of Mexico (SARH) will formally invite target CARICOM institutions to participate in the Programme.

8.0 TECLAC's Executive Secretariat should facilitate the formation of a small team of institutional representatives drawn from the Steering Group of six (SG-6), to formulate in detail the cooperation project proposals outlined at TECLAC II. The Team should represent CARDI, UWI and the presidency of TECLAC (currently INIFAP), assisted by the Executive Secretariat (IICA). It will meet in the Caribbean. The formulated projects will be communicated to TECLAC's membership, after review and ratification by the cooperating parties directly concerned. This process should not prevent immediate implementation of lateral or bilateral activities specifically agreed upon by participants in TECLAC II.

9.0 TECLAC's Executive Secretariat should present to the SG-6 an Annual Report as well as periodic (e.g. quarterly) progress reports on activities covered by TECLAC during the year.

1.3 1994-1997 PROGRAMME OF JOINT OPERATION

The following 1994-1997 Programme of Joint Operation is based on proposals tabled by the Latin American and Caribbean Institutions which were represented at TECLAC II.

The proposals will be formulated into detailed projects or short-term actions, to be implemented from July 1994 to June 1997. They are summarized by Technical Cooperative Programmes, as follows:

1.0 TCP.1 INFORMATION SYSTEMS DEVELOPMENT

1.1 Title: Application of Geographic Information System (GIS) to Agricultural Zoning in the Caribbean

- **Target areas:** Agro-ecologic and socio-economic assessment and recommendations for agricultural development and sustainability.
- **Lead Institution:** INIFAP/Mexico
- **Target Cooperant:**
 - CARDI/Trinidad & Tobago
 - UWI/Trinidad & Tobago

1.2 Title: CATIE's Support to Information System Development in the Caribbean

- **Target areas:** System identification, testing, adaptation and application for agricultural development and sustainability.
- **Lead Institution:** CATIE/Costa Rica
- **Target Cooperants:**
 - CARDI/Trinidad & Tobago
 - UWI/Trinidad & Tobago
 - INIFAP/Mexico

2.0 TCP.2 TRAINING

2.1 Title: In-Service Training at EMBRAPA

- **Target areas:**
 - Cashew nut production and agro-industrial processing
 - Horticultural production (onion, garlic, hot peppers)

- **Tropical fruit crops production for export (pineapple, mango, papaya, passion fruit)**
- **Lead Institution: EMBRAPA**
- **Target Cooperants:**
 - **CARDI/Trinidad & Tobago**
 - **CARIRI/Trinidad & Tobago**
 - **UWI/Trinidad & Tobago**

2.2 Title: Postgraduate Training at CP

- **Target areas:**
 - **Biotechnology**
 - **Plant Breeding**
 - **Crop Production technology**
 - **Mycorrhizae**
 - **Fruit tree crops**
- **Lead Institution: CP/Mexico**
- **Target Cooperants: UWI/Trinidad & Tobago**

2.3 Title: Continuing Education at CP

- **Target areas: Open**
- **Lead Institution: CP/Mexico**
- **Target Cooperants: UWI/Trinidad & Tobago**

2.4 Title: Academic Training and Accreditation Network

- **Target area: Postgraduate training at the MSc and PhD degree levels**
- **Lead Institution: UWI/Trinidad & Tobago**
- **Target Cooperants:**
 - **CP/Mexico**
 - **CATIE/Costa Rica**

2.5 Title: Training in Spanish for Professionals from CARICOM Institutions

- **Target area: Proficiency in reading, speaking and writing**
- **Lead Institution: FONAIAP**
- **Target Cooperants:**
 - **UWI/Trinidad & Tobago**
 - **IICA/Barbados**

2.6 Title: Postgraduate Training at CATIE

- **Target area: Training at the MSc and PhD degree levels**
- **Lead Institution: CATIE/Costa Rica**
- **Target Cooperant: UWI/Trinidad & Tobago**

3.0 TCP.3 EXCHANGE OF MATERIALS

3.1 Title: Exchange of Sheep Germplasm

- **Target area: Black Belly sheep from the CARICOM region**
- **Lead Institution: INIFAP/Mexico**
- **Target Cooperant: CARDI/Trinidad & Tobago**

4.0 TCP.4 TRANSFER OF TECHNICAL EXPERTISE

4.1 Title: Transfer of CP's Interdisciplinary Group Methodology (IGM) for Technology Transfer

- **Target area: Extension**
- **Lead Institution: CP/Mexico**
- **Target Cooperants:**
 - **CARDI/Trinidad & Tobago**
 - **UWI/Trinidad & Tobago**

5.0 TCP.5 TECHNOLOGY RESEARCH/DEVELOPMENT AND TRANSFER UNDERTAKINGS

5.1 Title: Cooperation between CP/Mexico and the Caribbean in Livestock R/D

- **Target areas: Training and technology generation and transfer in**
 - **Nutrition of Ruminants**
 - **Nutrition of Non-ruminants**
 - **Physiology of reproduction**
 - **Forage management**
 - **Animal genetics**
 - **Wildlife management**
 - **Tropical animal husbandry**
- **Lead Institution: CP/Mexico**
- **Target Cooperants:**
 - **CARDI/Trinidad & Tobago**
 - **UWI/Trinidad & Tobago**

5.2 Title: Cooperation between FONAIAP and the Caribbean for Agricultural Development

- **Target areas: Training and technology generation and transfer, in:**
 - **mango**
 - **papaya**
 - **avocado**
 - **coffee**
 - **fisheries**
 - **aquaculture**
 - **livestock management and disease control**
- **Lead Institution: FONAIAP/Venezuela**
- **Target Cooperants:**
 - **CARDI/Trinidad & Tobago**
 - **UWI/Trinidad & Tobago**

5.3 Title: Cooperation between INIFAP and the Caribbean for Agricultural Development

- **Target areas: Training, joint research, germplasm exchange and support to technology transfer, in:**

- Tropical fruit crops (mango, papaya, pineapple, banana, plantain, citrus, cacao, coffee, coconut)
 - Cereals (corn, beans, rice)
 - Hair sheep management and breeding (Black Belly sheep)
 - Forages
 - Agroforestry
- Lead Institution: INIFAP/Mexico
 - Target Cooperants:
 - CARDI/Trinidad & Tobago
 - UWI/Trinidad & Tobago

5.4 Title: Cocoa Germplasm Characterization

- Target area: Molecular characterization, through biotechnologies
- Lead Institution: CATIE/Costa Rica
- Target Cooperant: UWI/Trinidad & Tobago

5.5 Title: Support of CATIE to Root Crops R&D in the Caribbean

- Target area: Germplasm collection and conservation, postharvest handling, and training
- Lead Institution: CATIE/Costa Rica
- Target Cooperants:
 - CARDI/Trinidad & Tobago
 - UWI/Trinidad & Tobago

5.6 Title: Cooperation between CATIE and the Caribbean in Pest Management Through Biotechnology

- Target area: Bananas and plantains
- Lead Institution: CATIE/Costa Rica

- **Target Cooperants:**
 - **CARDI/Trinidad & Tobago**
 - **FHIA/Honduras**
 - **WINBAN/Saint Lucia**

5.7 Title: Cooperation between CATIE and the Caribbean in Agroforestry Development

- **Target area:** Training and technology generation and transfer
- **Lead Institution:** CATIE/Costa Rica
- **Target Cooperant:** UWI/Trinidad & Tobago

6.0 TCP.6 SUPPORT TO BILATERAL AGREEMENTS

6.1 Title: IICA's Support to Cooperative Undertakings between Latin America and the Caribbean

- **Target areas:** Technical cooperation between Mexico and CARICOM institutions, for agricultural development
- **Lead Institution:** IICA/Mexico
- **Target Cooperants:**
 - **CARDI/Trinidad & Tobago**
 - **CARICOM Secretariat/Guyana**
 - **UWI/Trinidad & Tobago**

2.0 COOPERATION PROJECT PROFILES

2.1 CATIE

Title: Establishment of Training Network

1. *Target Problem:*

Regional duplication and under-utilisation of complementary comparative advantages of post-graduate training institutions in agriculture, from the Caribbean and Latin America.

2. *Specific Objective:*

To consolidate a linkage network among three agricultural postgraduate training institutions from Latin America and the Caribbean.

3. *Expected Outputs:*

- Broad based (cross-regional/cross-cultural) perspective of students in the subject matter
- Appreciation of inter-regional differences in problem solving
- More effective use of regional resources

4. *Major Activities:*

- Provide description of courses of interest
- Organise student/faculty exchange visits
- Design research project for student thesis
- Provide language training

5. *Operational Strategy:*

5.1 Mode:

- Students will register in one university and conduct supplemental course work and/or part of their research in another, under formal agreement for cross accreditation courses.
- One or more faculty members from one university will sit on the thesis committee at the counterpart university.

5.2 Target clients:

- Postgraduate students from Caribbean and Latin American cooperating institutions

- 5.3 **Target partners institutions:**
- UWI
 - UNPHU
 - CATIE
- 5.4 **Project life span**
- Four years for the first phase
- 5.5 **Funding arrangements:**
- European Union and other sources
6. ***Estimated Total Cost:***
- A total of US\$100,000 a year, totalling US\$400,000
7. ***Initiation Deadline:***
- October, 1994
8. ***Lead Institution:***
- UWI

Title: Cacao Germplasm Characterization

1. ***Target Problem:***

Insufficient characterisation of cacao germplasm for synchronising database and facilitating genetic improvement of the crop.

2. ***Specific Objective:***

To conduct molecular characterisation of cacao populations with the aid of biotechnology.

3. ***Expected Outputs:***

- Molecular characterisation of collections, which will facilitate international comparison of germplasm sources
- Identification and accelerated use of certain desired genes for genetic improvement

4. *Major Activities:*

- Fine tune the methodology of Rapid Amplified Polymorphic DNA (RAPD)
- Continue to develop linkage map in cacao

5. *Operational Strategy:*

5.1 Mode:

- Establish linkage with the cacao team at UWI and facilitate reciprocal exchange visits of biotechnologists
- Compare methodologies and results

5.2 Target clients:

- Cacao growers and processors

5.3 Target partner institutions:

- CATIE
- UWI/CRU

5.4 Project life span:

- Two years for the first phase

5.5 Funding arrangements:

- A proposal to solicit support will be prepared by concerned parties

6. *Estimated Total Cost:*

- US\$80,000 per year, totalling US\$160,000

7. *Initiation Deadline:*

- September 1994

8. *Lead Institution:*

- CATIE

Title: Caribbean Root and Tuber Crops Research network

1. *Target Problem:*

Insufficient capitalisation of resources in addressing common problems of root and tuber crops in the Caribbean and Latin America.

2. *Specific Objective:*

To establish a research network involving the major root and tuber crops producing countries in the Caribbean and Latin America.

3. *Expected Outputs:*

- Major priorities for research in root and tuber crops jointly identified
- Improved germplasm and technologies transferred to root and tuber crop-based farming systems

4. *Major Activities:*

Collect and conserve neglected root and tuber crops not currently handled by any CGIAR institution.

5. *Operational Strategy*

5.1 Mode:

- CATIE will initiate a draft proposal in consultation with CARDI and UWI
- The proposal will be circulated to the participating countries for review, input and endorsement
- Finalised proposals will be submitted to donors for funding

5.2 Target clients:

- Major root and tuber crops producing countries in the Caribbean

5.3 Target partner institutions:

- CARDI
- UWI
- CATIE

5.4 Project life span:

- Three years

5.5 Funding arrangements:

- FAO will be approached to assist in funding network activities

6. *Estimated Total Cost:*

To be worked out among partner institutions.

7. ***Initiation Deadline:***
 - October, 1994
8. ***Lead Institution:***
 - CARDI

2.2 EMBRAPA

Title: In-service Training in Horticultural Production

1. *Target Problem:*

Inadequate post-harvest technology applied to horticultural crops in the Caribbean.

2. *Specific Objectives:*

To provide in-service training at the theoretical and practical levels in horticultural production systems, with emphasis on:

- **Horticulture production technologies involving tomato, Irish potato, sweet potato, cabbage, cauliflower, broccoli, cucumber, squash, onion, garlic, eggplant and green pepper**
- **Specific exposure to the following thematic areas:**
 - **horticulture irrigation technologies**
 - **horticulture genetic improvement**
 - **horticulture seed production technology**
 - **cellular biology applied to vegetable crops**

3. *Expected Outputs:*

- **Increased professional capabilities in the Caribbean to improve production and marketing of horticultural crops**
- **Modern postharvest technologies in production/marketing of specific vegetables transferred from Brazil to the Caribbean**

4. *Major Activities:*

- **Formal lectures and informal presentations, discussions and individual study**
- **Technical visits to most advanced production areas featuring small to large scale farming systems**

5. *Operational Strategy:*

5.1 Mode:

- **The course will be offered by EMBRAPA's National Centre for Horticultural Research (CNPH), in Brasilia, D.F. Brazil**
Formal classes will be conducted in English

- 5.2 **Target clients:**
- **Participants from the Caribbean Research Institutions**
- 5.3 **Target partner institutions:**
- **CARDI**
 - **UWI**
 - **MOAs**
- 5.4 **Project life span:**
- **About 35-40 days during the months of September, October and November 1994, or April/May 1995**
- 5.5 **Funding arrangements:**
- **Candidates will secure own funding from or through corresponding sponsors**
6. ***Estimated Total Costs:***
The total amount should cover:
Administrative Costs:
- **Instructor travel expenses to accompany trainee**
 - **Didactic materials**
 - **Food at CNPH cafeteria**
 - **Transportation from hotel to CNPH and vice-versa**
 - **Technical visits to production areas outside Brasilia (air tickets plus food and lodging)**
- Indirect Costs:**
- **Round trip tickets and per diem or allowance to cover food (breakfast and dinner) plus lodging at a hotel in downtown Brasilia**
 - **Health and life insurance**
7. ***Initiation Deadline:***
- **September, 1994**
8. ***Lead Institution:***
- **EMBRAPA**

Title: In-service Training in Tropical Fruit Crops

1. ***Target Problem:***

- **Inadequate pest and disease management and postharvest technologies used in the Caribbean, leading to low productivity and marketing competitiveness**

2. *Specific Objectives:*

To provide in-service training at theoretical and practical levels in topical fruit crops (pineapple, mango and papaya), with emphasis on crop management, technology transfer and design of research and support projects for implementation in the Caribbean.

3. *Expected Outputs:*

- Increased professional capabilities in the Caribbean to improve production, processing and marketing of tropical fruits
- Modern production/marketing technology transferred from Brazil to the Caribbean
- Improved processing capabilities

4. *Major Activities:*

- Provide formal and informal lectures on the crops (major characteristics, production problems and possible solutions)
- Conduct field and laboratory activities (identification of pests and diseases, fruit analysis, nutritional deficiency identification)
- Technical visits to major production areas
- Demonstration of propagation techniques using virus free plants

5. *Operational Strategy:*

5.1 Mode:

- The course will be offered by EMBRAPA's National Research Centre for Tropical Fruits and Cassava, in Cruz das Almas, Bahia, Brazil
- Formal classes will be conducted in English

5.2 Target clients:

- Participants from Caribbean technology research, development and transfer institutions

5.3 Target partner institutions:

- CARDI
- UWI
- MOAs

- 5.4 **Project life span**
 - One month per training period, preferably November, May or June
- 5.5 **Funding arrangement:**
 - Candidates will secure their own funding from or through their sponsors
6. ***Estimated Total Costs:***
Total costs comprise:
 - **Direct Costs (US\$20,000):**
 . Food and lodging at CNPFM
 . Didactic materials, publications and photocopying plus other laboratory and field materials
 . Internal transportation (air travel and per diem to visit production areas in the States of Pernambuco, Pariba, Minas Gerais and Sao Paulo, depending upon specific interest)
 . Visits to experiments and production regions in the State of Bahia
 . Administrative expenses
 - **Indirect Costs:**
 . Round trip tickets and per diem/allowance to cover incidental expenses
 . Health and life insurance
7. ***Initiation Deadline:***
 - November, 1994
8. ***Lead Institution:***
 - EMBRAPA

Title: In-Service Training for Cashew Processing

1. ***Target Problem:***
 - Inadequate production technologies applied in the Caribbean
 - Insufficient processing capabilities in that region
2. ***Specific Objectives:***

To provide in-service training at theoretical and practical levels in cashew nut production management technologies and agro-industrial processing of nuts and other by-products.

3. *Expected Outputs:*

- **Increased professional capabilities in the Caribbean to improve production, processing and marketing of cashew**
- **Modern production and processing technologies transferred from Brazil to the Caribbean**

4. *Major Activities:*

- **Formal and informal presentations and discussions on cashew production technologies and agro-industrial processing**
- **Visits to production areas (experimental farms in the State of Ceará), including production partnership projects involving Government and private sector (production plants)**

5. *Operational Strategy:*

5.1 Mode:

- **The training course will be offered by EMBRAPA's National Research Centre for Tropical Agro-industry, in Fortaleza, Ceará**
- **Formal classes will be conducted in English**

5.2 Target clients:

- **Participants from Caribbean technology research, development institutions**

5.3 Target partner institutions:

- **CARDI**
- **UWI**
- **MOAs**

5.4 Project life span:

- **Two months per training period (September/October, October/November)**

5.5 Funding arrangements:

- **Candidates will secure their own funding from or through their sponsors**

6. *Estimated Costs:*

The total amount is not calculated but should cover:

- **Direct Costs (US\$12,000):**
- **Learning materials including reproduction of documents plus laboratory and field materials**

- . **Internal transportation (visits to experimental sites and production areas in the State of Ceará)**
- . **Food and lodging at a farm located 500 km from the centre's headquarters in Fortaleza**
- . **Administrative expenses**
- **Indirect Costs:**
- . **Round trip tickets and per diem/allowance to cover food and lodging**
- . **Health and life insurance**

7. *Initiation Deadline:*

- **September, 1994**

8. *Lead Institution:*

-

3.0 AGENDA OF COOPERATION BETWEEN LATIN AMERICA AND THE CARIBBEAN

3.1 LATIN AMERICAN/CARIBBEAN COOPERATION AGENDA FOR AGRICULTURAL DEVELOPMENT, JULY 1994¹

Area Sub-areas	Sub-areas Priority Problems	Main Modes of Cooperation	Main Partner Institutions		
			Caribbean	Latin America	
1. 1.1 1.1.1 1.1.2 1.1.3 1.1.5 1.1.6 1.1.7 1.1.8 1.1.9 1.1.10 1.1.11 1.1.12 1.1.13	CROPS Fruits, Stimulants and Spices Banana Pineapple Mango Papaya Avocado Passion Fruit Plantain Christophene Cacao Coffee Black Pepper Cashew Nut	- Narrow germplasm base - Insufficient access to improved cultivars - Inadequate post and disease management - Inadequate production technologies - Insufficient laboratory management capability - Inadequate postharvest technologies - Low productivity - Insufficient exchange of planting materials including root stocks - Insufficient technological advance in flower induction - Insufficient hybridization programmes - Insufficient processing capability - Inadequate processing technologies - Weak institutional organisation and linkage for diversification	- In-service training - Formal training - Short-term secondment - Technology transfer - Joint undertaking of technology R&D - Exchange of germplasm - Exchange of information - Reciprocal visits - Translation of technical documents - Assistance to establishment of museum plots and germplasm collections	Caribbean - CARDI - CARIKI - CITRAD - MOAS - Dominica - Grenada - Guyana - Saint Lucia - St Vincent and the Grenadines - MARI - UWI - WINBAR	Latin America - CATIE - EMBRAPA - FRIIA - FORALAP - ICA - ICTA - INIPAP - INTA - IPGRI

3.1 cont. LATIN AMERICAN/CARIBBEAN COOPERATION AGENDA FOR AGRICULTURAL DEVELOPMENT, JULY 1994¹

Area Sub-areas	Sub-areas Priority Problems	Main Modes of Cooperation	Main Partner Institutions	
			Caribbean	Latin America
1.2 Root and Tuber Crops	<ul style="list-style-type: none"> - Narrow germplasm base (e.g. sweet potato, cassava) - Inadequate post and disease management - Inadequate postharvest technology 	<ul style="list-style-type: none"> - Information sharing - Reciprocal visits - International networking - Exchange of planting materials - Formal training - Informal training - Germplasm exchange - Technical assistance 	<ul style="list-style-type: none"> - CARDI - INRA - MOAs - St Vincent and the Grenadines 	<ul style="list-style-type: none"> - EMBRAPA - PROCINDIMO - CATIE
1.3 Vegetables	<ul style="list-style-type: none"> - Insufficient socio-economic studies to guide domestic and export marketing - Inadequate postharvest technologies 	<ul style="list-style-type: none"> - Technology sharing - Information exchange 	<ul style="list-style-type: none"> - INRA - MOAs - Dominica - Saint Lucia - MOA - Guyana 	<ul style="list-style-type: none"> - INTIAP
1.4 Grains	<ul style="list-style-type: none"> - Information exchange 	<ul style="list-style-type: none"> - Information sharing 	<ul style="list-style-type: none"> - CIRAD - IARI 	<ul style="list-style-type: none"> - ICA
1.4.1 Rice	<ul style="list-style-type: none"> - Insufficient availability of improved production/processing technologies 			
1.4.2 Food Legumes	<ul style="list-style-type: none"> - Inadequate marketing techniques - Inadequate postharvest techniques - Insufficient accessibility of farmers to improved planting materials 	<ul style="list-style-type: none"> - Technology sharing - Formal training - Use of narrow germplasm base - Joint undertaking of technology R&D - Information exchange - Short-term attachment 	<ul style="list-style-type: none"> - CARDI - CIRAD - INRA - MOAs - Grenada - Saint Lucia - St Vincent and the Grenadines - CARDI 	<ul style="list-style-type: none"> - EMBRAPA - FHIA - FOMAIAP
1.5 Ornamentals				

Area Sub-areas	Sub-areas Priority Problems	Main Modes of Cooperation	Main Partner Institutions	
			Caribbean	Latin America
2. LIVESTOCK				
2.1 Ruminants	<ul style="list-style-type: none"> - Low quality forages - Inadequate supply of indigenous protein sources - Insufficient supply of indigenous feeds - Precarious, animal health (especially sickness caused by amblyoma ticks) - Insufficient application of modern meat processing technology - Deficient production systems 	<ul style="list-style-type: none"> - Formal training in live-stock management technology - Inservice training 	<ul style="list-style-type: none"> - CARDI - IMRA - MARI - UWI 	<ul style="list-style-type: none"> - CATIE - EMBRAPA - FOMALAP - ICA - INIFAP - INTA
3. AGROFORESTRY	<ul style="list-style-type: none"> - Insufficient methodological knowledge to design sustainable agroforestry systems and watershed management 	<ul style="list-style-type: none"> - Technology sharing - Diagnosis - Short-term attachment 	<ul style="list-style-type: none"> - CARDI - CIRAD - MOAs - St Lucia - UWI - CARDI 	<ul style="list-style-type: none"> - CATIE - EMBRAPA - INTA
4. STRATEGIC RESEARCH				
4.1 Biotechnology	<ul style="list-style-type: none"> - Insufficient institutional capabilities for undertaking activities in: <ul style="list-style-type: none"> - embryo transplant in livestock - genetic engineering in plants and animals 	<ul style="list-style-type: none"> - Technology sharing 		<ul style="list-style-type: none"> - CATIE - EMBRAPA - FRLA - ICA - ICTA - INTA

3.1 cont. **LATIN AMERICAN/CARIBBEAN COOPERATION AGENDA FOR AGRICULTURAL DEVELOPMENT, JULY 1994¹**

Area Sub-areas	Sub-areas Priority Problems	Main Modes of Cooperation	Committed Institutions	
			Caribbean	Latin America
4.1 Biotechnology (cont.)	<ul style="list-style-type: none"> . vaccines production animal health . preparation of diagnostic kits . germplasm collection and characterization in plants and animals . tissue culturing in crops 			
4.2 Agribusiness Management	<ul style="list-style-type: none"> - Insufficient training opportunities 	<ul style="list-style-type: none"> - Formal Training - Informal Training 	<ul style="list-style-type: none"> - CIRAD - MOAs - Saint Lucia 	<ul style="list-style-type: none"> - CATIE - PROCIAMDINO - PROCISUR
4.3 Impact of Agro-chemicals on the Environment	<ul style="list-style-type: none"> - Insufficient sharing of research results 	<ul style="list-style-type: none"> - Information exchange 	<ul style="list-style-type: none"> - CIRAD 	<ul style="list-style-type: none"> - FHIA
4.4 Macro-economics Policies	<ul style="list-style-type: none"> - Scarcity of sound methodologies to assess priorities and analyse impact of policies on agricultural research 	<ul style="list-style-type: none"> - Information sharing 	<ul style="list-style-type: none"> - CIRAD 	<ul style="list-style-type: none"> - ICTA
4.5 Soil Management	<ul style="list-style-type: none"> - Insufficient institutional capabilities to carry out research on acid, sandy soils of the savannahs 	<ul style="list-style-type: none"> - Information sharing - Joint undertaking of R&D - Networking 	<ul style="list-style-type: none"> - CARDI - CIRAD - INRA - IARI 	<ul style="list-style-type: none"> - EMBRAPA - FOMALAP - ICA - INIFAP

3.1 cont. **LATIN AMERICA/CARIBBEAN COOPERATION AGENDA FOR AGRICULTURAL DEVELOPMENT, JULY 1994¹**

Area Sub-areas	Sub-areas Priority Problems	Main Modes of Cooperation	Main Partner Institutions	
			Caribbean	Latin America
5. INSTITUTIONAL DEVELOPMENT				
5.1 Technology Research, Development and Transfer Systems	<ul style="list-style-type: none"> - Inadequately structured institutional systems - Weak institutional management systems - Insufficient technological development for agricultural diversification, especially focused on: <ul style="list-style-type: none"> - fruit tree crops - hot pepper - vegetables - cacao - palm hearts - plantain - Language barriers - Insufficient circulation of information materials 	<ul style="list-style-type: none"> - Reciprocal visits - Short-term attachments - Technical assistance - Inservice training - Translation of information - Exchange of literature - Reciprocal mailing lists - Reciprocal subscription to sources of information 	<ul style="list-style-type: none"> - MOAs - Dominica - Guyana - CARDI - WINSPAN 	<ul style="list-style-type: none"> - CATIE - EMBRAPA - FIALA
5.2 Linkage Between Farmer Organisations and R/D Structures	<ul style="list-style-type: none"> - Slow pace of agricultural diversification and technological modernisation 	<ul style="list-style-type: none"> - Reciprocal visits - Technology transfer - Translation of information - Information exchange - Training of farmers 	<ul style="list-style-type: none"> - MOAs - Dominica 	

3.1 cont. **LATIN AMERICAN/CARIBBEAN COOPERATION AGENDA FOR AGRICULTURAL DEVELOPMENT, JULY 1994¹**

Area Sub-areas	Sub-areas Priority Problems	Main Modes of Cooperation	Main Partner Institutions	
			Caribbean	Latin America
5.3 Professional Training	<ul style="list-style-type: none"> - Insufficient professional capability in: <ul style="list-style-type: none"> - plant propagation (especially through tissue culture) - artificial insemination in livestock - use of sugar cane as livestock feed - integrated pest management - information system management (e.g. GIS) - resource management for agricultural sustainability 	<ul style="list-style-type: none"> - In-service training - Short-term attachment - Reciprocal visits - Translation of training references - Exchange of information 	<ul style="list-style-type: none"> - MOAs - Dominica - Grenada - CARDI - UWI 	<ul style="list-style-type: none"> - CATIE - FHIA
5.4 Data Bases	<ul style="list-style-type: none"> - Insufficient/inadequate information on production and marketing, especially for fruit tree crops (pineapple, carambola, guava, W.I. cherry and cashew), vegetables and root/tuber crops 	<ul style="list-style-type: none"> - Reciprocal visits - Translation of information - Exchange of information - Training in computer science - Transfer of technology 	<ul style="list-style-type: none"> - MOAs - Dominica - Guyana - CARDI - UWI 	<ul style="list-style-type: none"> - CATIE - INIFAP

¹ Updates the Specific Recommendations contained in: IICA 1993, Agricultural technology Transfer between Latin America and the Caribbean, Meeting Proceedings May 18-20, 1993, Castries, Saint Lucia (by A.M.Pinchinat, E.Alarcon and R.Perez). IICA Series Reports, Results and Recommendations from Technical Events IISW-0253-4746 B2/IC-93-002 pages 5-10.

4.0 ANNEXES

4.1 ANNEX I: PROGRAMME

DAY/TIME (Hr)	SUBJECT
MONDAY 11	
07.00 - 20.00	Arrival of Participants
TUESDAY 12	
08.00	Departure from Segovia Regency Hotel, Mexico D.F. to the Post graduate College, Montecillo, Mexico
09.00 - 10.00	Registration of Participants
10.00 - 10.30	INAUGURATION <ul style="list-style-type: none">- Welcome Remarks by Dr.Rafael Rodriquez Montessoro, Director General, CP- Remarks by Dr.Mario Martinez Menez, INIFAP- Remarks by Dr.Juan Jose Salazar Cruz, IICA Representative in Mexico- Opening Address by Lic Augustin Sanchez, SRE
10.30 - 11.00	BREAK
11.00 - 11.15	Background and Procedure of the Meeting - A.M.Pinchat, TECLAC's Executive Secretary, IICA, Saint Lucia
11.15 - 12.30	1994-1995 Cooperation Programme between CATIE and the Caribbean <ul style="list-style-type: none">- M.Alvarez, CATIE, Costa Rica
12.30 - 14.00	LUNCH
14.00 - 15.30	1994-1995 Cooperation Programme between EMBRAPA and the Caribbean <ul style="list-style-type: none">- S.Ramagem, EMBRAPA, Brazil
15.30 - 16.00	BREAK
16.00 - 17.30	1994-1995 Cooperation Programme between FONAIAP and the Caribbean <ul style="list-style-type: none">- I.A.Chacon, FONAIAP, Venezuela
18.00	Departure to Segovia Regency Hotel
WEDNESDAY 13	
08.00	Departure from Segovia Regency Hotel to CP
09.00 - 10.00	1994-1995 Cooperation Programme between CP and the Caribbean - F.Escobar, CP, Mexico

WEDNESDAY 13 cont.

- 10.00 - 10.30 **1994-1995 Cooperation Programme between INIFAP and the Caribbean**
- H.Roman P, INIFAP, Mexico
- 10.30 - 11.00 **1994-1995 Cooperation Programme between IICA's Latin-American PROCIs and the Caribbean**

- PROCIANDINO - N.Rivas, Ecuador
- RISPAL - M.Ruiz, Costa Rica
- 11.00 - 13.00 **institutional Arrangements for Cooperation**
- H.Blades, CARDI (Trinidad & Tobago);
- L.Wilson, UWI (Trinidad & Tobago);
- M.R.Harris, CARIRI (Trinidad & Tobago)
- 13.00 - 15.00 **Visit to Domecq's San Antonio Ranch**
- 15.30 - 16.00 **Presentation of Video on CP's Facilities**
- 16.00 - 17.00 **Summary and discussion of 1994-1997 Programme of Joint Operation Between Latin America and the Caribbean - Plenary**
- 17.00 **Dinner at CP and return to Segovia Regency Hotel**

THURSDAY 14

- 07.30 - **Departure from Segovia Regency Hotel**
- 11.30 - 14.00 **Visit to Cordoba Campus, CP - Presentations by research staff, on tropical fruits and sugar cane**
- 14.00 **Departure to Restaurant Virreinal, Cordoba**
- 14.30 - 16.00 **LUNCH**
- 16.00 **Departure to Veracruz**
- 17.15 - 18.15 **Visit to CRECIDATH, CP - Presentations on small ruminants**
- 18.15 **Departure to Hotel Colonial, Veracruz**

Business Meeting

Free evening

FRIDAY 15

- 8.00** **Departure to Cotaxtla Experiment Farm of INIFAP**
- 08.30 - 09.30** **Results and advances of research projects on tropical fruits - Dr Raul Mosqueda**
- 09.30 - 10.30** **Results and advances of research projects on basic food crops**
- MSc Mauro Sierra M.
- 10.30 - 11.00** **Project on soil productivity potential for different plant species**
- MSc Gabriel Diaz P.
- 11.00 - 11.45** **Project on supports to Livestock technology transfer**
- MSc Miguel A.Rodriguez Chessani
- 11.45 - 12.00** **Concluding Remarks - CP; SARH; SRE; IICA; INIFAP**
- 12.00** **Departure to Jalapa**
- 13.15 - 15.00** **Lunch in Jalapa**
- 15.00** **Departure to Mexico City**

SATURDAY 16

- 07.00** **DEPARTURE OF PARTICIPANTS**

4.2 ANNEX II: LIST OF REGISTERED PARTICIPANTS

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