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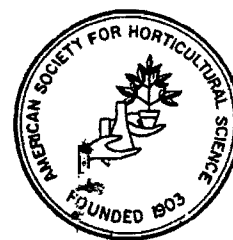
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THE PLANT PROTECTION PROGRAMME OF IICA IN THE CARIBBEAN

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ABSTRACT

The IICA Plant Protection Programme for the Caribbean seeks to promote and support the efforts of the countries of the Caribbean to prevent and reduce crop losses caused by pests, diseases and weeds. The programme, which was started in 1981, has as a fundamental strategy of reciprocal technical cooperation where the experiences and technical information of some countries are used in a transfer of technology to others utilising human resources, information exchange and mechanisms for communication. The establishment of a Society for Plant Protection in the Caribbean, the establishment of a Regional Plant Protection Newsletter and annual meetings of Heads of Plant Protection represent the major mechanisms in this technical cooperation package.

Attempts to harmonize pesticide legislation and the training and certification of Plant Quarantine Inspectors represent approaches to standardize the legislative aspects of Plant Protection in the region.

Initiatives have also been focused on survey and eradication studies and proposals are imminent to set up a data base of Plant Protection information for the Caribbean.

RESUMEN

El programa de la protección de plantas de la IICA en el Caribe, aspira a promover y ayudar los esfuerzos de las islas del Caribe, para prevenir y reducir las pérdidas de cultivos, causadas por plagas, enfermedades y hierbas malas. El programa, el cual se inició en el año 1981, tiene como una estrategia fundamental la cooperación técnica y recíproca, en la cual las experiencias e información técnica de algunos países es utilizada para transferir la información técnica, a otros, haciendo uso de: recursos humanos, intercambio de información y mecanismos de comunicación. Los mecanismos mas importantes de este paquete técnico son, el establecimiento de una sociedad para la Protección de Plantas en el Caribe, el establecimiento de un Boletín Regional sobre la Protección de Plantas y de reuniones anuales de Directores de Protección de Plantas.

Los intentos para poder armonizar la legislación sobre el uso de pesticidas y el entrenamiento y certificación de Inspectores de Cuarentena de Plantas, representan los esfuerzos para poder reglamentar los aspectos legislativos de la Protección de Plantas en esta región.

Iniciativas también, se han enfocado en los estudios de investigación e erradicación y, las propuestas de establecer una base de datos de Información de la Protección de Plantas para el Caribe, son inminentes.

The Ministers of Agriculture attending the VII Inter-American Conference of Agriculture held in Honduras in 1977 expressed their concern regarding the disease problems of plants and animals throughout the Western Hemisphere. Two of the ten recommendations made at this conference refer to this subject. The Special Committee of the Eighteenth Annual Meeting of IICA Board of Directors held in October, 1978 recommended that the Director General of IICA study a proposal aimed at the establishment of a mechanism for the coordination of efforts to fight pests and disease problems affecting animals and plants and which are the cause of significant losses in the Hemisphere.

As a result of these directives, IICA has established a Hemispheric Plant Protection Programme designed to prevent, control and, if possible, eradicate diseases and pests which cause economic damage to crops in the Hemisphere and which threaten to spread to other regions.

The programme is made up of a Programme Director stationed at IICA headquarters in San Jose, Costa Rica and four Plant Protection Specialists, one stationed in each of the four regions of the Hemisphere. The Plant Protection Specialist for the Caribbean is Chelston W.D. Brathwaite, Plant Pathologist stationed in the IICA Office in Trinidad and Tobago.

In accordance with IICA's basic strategy, this programme is directed towards strengthening national and regional efforts being carried out by other organizations. It is designed to support, coordinate and collaborate with other International, regional and subregional institutions working in this area and in no case will duplicate or replace existing institutions.

The programme recognises that the spread of pests, diseases, and weeds that affect basic food and

export crops aggravate the food, foreign exchange and energy needs of the Latin American and Caribbean countries. Coordinated international action can contribute to reducing the spreading and incidence of these pests, weeds and diseases, since the individual capabilities of national plant protection institutions are usually limited by low levels of physical, human and financial resources with which to attain their objectives.

General objective of the programme

To promote and support the efforts of the countries to prevent and reduce crop losses caused by pests, diseases and weeds.

Specific objectives of the programme

To cooperate with the countries in expanding and improving their institutional capability to:

- (a) Update and standardize national and international legal provisions and regulations governing plant protection.
- (b) Identify, detect and estimate the damage caused by the main crop pests, diseases and weeds.
- (c) Plan, coordinate and implement programmes for reducing the incidence and preventing the spread of the main crop pests, diseases and weeds.
- (d) Plan, coordinate and implement research and technical exchange programmes on crop pests, diseases and weeds.

- (c) Generate mechanisms for upgrading the physical, human and financial resources of plant protection institutions, according to the levels of responsibility that have been assigned them.

Strategy of the programme

To promote and support:

- (a) The updating and standardization of national and international legal provisions and regulations governing plant protection (quarantine and pesticides).
- (b) The formulation, implementation and evaluation of multinational projects that involve economically important pests and diseases of mutual interest to several countries.
- (c) The formulation, implementation and evaluation of high-priority projects at the national level.
- (d) The use of technical and human resources from other IICA programs, from CATIE, and from national and international institutions with experience in this field.
- (e) The operational and technical reinforcement of national and international institutions working in this field (OIRSA, FAO, CIP, NAPPO, CIAT, CIMMYT).
- (f) Coordination with other international agencies.
- (g) The organization and promotion of meetings, seminars and other events for consultation and orientation to establish working guidelines and priorities for action.
- (h) The organization of scientific associations for plant protection, that can provide a forum for studying plant health problems in the countries, the subregions and the hemisphere.
- (i) The participation of farmers' organizations, field workers and the rural population in campaigns to control pests and diseases, as well as in quarantine measures.

The Heads of Plant Protection of IICA Member States in the Caribbean met in San José, Costa Rica from 15 – 17 August 1979, and again from July 27 – 29 1980 in Barbados. The objectives of these Meetings were to formulate a plan of action for the Caribbean within the Hemispheric Plant Protection Programme.

The Meeting in Barbados had as its objectives:

1. To analyse the programme objectives to make them more precise, more limited in scope and more realistic in relation to the financial resources of IICA.
2. To establish lines of priority from among the various proposals made at the Meeting in Costa Rica.

3. To establish mechanisms for coordination with Regional and International Plant Protection Organizations.

The result of this Meeting formed the basis for the orientation of the Programme at the Regional level.

The priorities identified included:

1. Training courses in Plant Quarantine and General Plant Protection.
2. Strengthening post entry Quarantine facilities.
3. Control and eradication of new pests and diseases.
4. Establishment of a Society for Plant Protection in the Caribbean.
5. Establishment of a Regional Newsletter.

The programme recognised the existence of several institutions concerned with plant protection in the Caribbean.

The Commonwealth Institute of Biological Control, with its track record in the biological control of pests.

The Caribbean Agricultural Research and Development Institute (CARDI), with its work in research and its outreach activities in several of the Islands.

The Faculty of Agriculture of the University of the West Indies, with its research and teaching capabilities and

Plant Protection divisions of the various Ministries of Agriculture.

The programme, however, recognized that there was no agency that provided a formal mechanism for coordination and cooperation in plant protection and that reciprocal, technical cooperation, which is so vital in the region because of the lack of plant protection capability in some of the smaller territories and the limited human and financial resources available, was not being fostered.

The programme also responded to: the need for information on pest and disease control; lack of professional stimulation among professionals in Ministries of Agriculture; lack of access to Scientific journals and lack of trained sub-professionals in plant protection and plant quarantine.

In recognition of these challenges, the following are some of the achievements of the programme to date.

Training

The programme recognises that the improvement of human resources represents one of the most important mechanisms for the enhancement of agricultural development. Consequently, training was given high priority in the actions which were carried out. There were three types of training provided:

- a. Plant Quarantine Training
- b. Training in Integrated Pest Management and
- c. Specialized Training for various Officers of Ministries of Agriculture.

a. *Plant Quarantine Training*

Effective Plant Quarantine is necessary for the safe movement of agriculture produce in Regional and International trade. The Heads of Plant Protection in the Caribbean recognized that there is an urgent need for trained plant quarantine inspectors in the Region.

Consequently, a Regional Plant Quarantine Training Course was established. The course was held in Trinidad and Tobago in 1982 and in Barbados in 1983.

The course objectives were as follows:

1. To develop and foster among Plant Quarantine Inspectors of the Region an awareness of their mutual responsibility to keep the Caribbean free from foreign pests and diseases.
2. To improve the skills of Plant Quarantine Inspectors in the detection and treatment of Plant pests and diseases which pose a threat to Caribbean Agriculture from either Regional or extra-regional sources.
3. To improve communication between Plant Quarantine Inspectors of various territories of the Region.
4. To form the basis for the preparation of a Caribbean Plant Quarantine Training Manual.

The course was designed primarily for inexperienced Plant Quarantine Inspectors and dealt with the general principles of plant quarantine and the duties, responsibilities and requirements of Plant Quarantine Inspectors.

Twenty-one Plant Quarantine Inspectors have been trained so far. These include six from Barbados, two from Dominica, two from Grenada, two from Guyana, one from Haiti, two from Jamaica, one from St. Kitts, one from St. Lucia, two from Suriname and six from Trinidad and Tobago.

b. Integrated Pest Management

In collaboration with the Caribbean Agricultural Research and Development Institute (CARDI), the University of the West Indies, Faculty of Agriculture and the Consortium for International Crop Protection (CICP), a two week training programme on Integrated Pest Management was held at the Faculty of Agriculture, University of the West Indies, St. Augustine, Trinidad and Tobago on 10th - 21st, 1981. The seminar was attended by twenty-one participants from thirteen countries in the Region and, together with participants from Trinidad and Tobago, there was an average daily attendance of thirty-five persons. Lecturers were drawn from the Consortium for International Crop Protection, the University of the West Indies, Ministry of Agriculture of Trinidad and Tobago, the Commonwealth Institute of Biological Control, the Caribbean Agricultural Research and Development Institute, Caroni Limited and IICA.

The course dealt with the basic concepts of integrated pest management and their application to the solution of pest and disease problems of crops grown in the Caribbean. While most participants expressed a high level of satisfaction with the training programme, it was the opinion of all that a more sustained effort and long-term training in this area was necessary. Certificates were presented at the end of the course.

c. Specialized Training

1. Training for the detection of pests in containerized cargo –

Two officers of the Ministry of Agriculture, Lands and Food Production, Trinidad and Tobago, were trained in this subject area.

2. Training in Acarology – An officer of the Ministry of Agriculture, Lands and Food Production, Trinidad and Tobago, was trained in Acarology.
3. Training in postharvest losses has been provided to an officer of a Research Institute in Trinidad and Tobago and in seed pathology for officers in Jamaica.

Information

In several of the Islands, access to current scientific literature is lacking. The programme introduced, in 1981, The Caribbean Plant Protection Newsletter.

The Newsletter, which is distributed annually, collects relevant information from scientific journals and from research in the region and makes it available in the form of abstracts to plant protection personnel throughout the region.

The newsletter publishes information on the following:

1. New research findings in the Caribbean.
2. New research findings elsewhere which are relevant to the region.
3. Abstracts of relevant literature.
4. Information on conferences and meetings.
5. Activities of plant protection personnel and institutions in the Caribbean.
6. IICA's Regional Plant Protection Programme.
7. Information on new equipment, pesticides, etc.
8. Feature articles on regional plant protection matters.

A new feature has recently been introduced where readers of the newsletter can obtain photocopies of the original articles from the editor.

In addition to the newsletter, the programme has published a document entitled "A Bibliography of Plant Disease Investigations in the Caribbean from 1880 – 1980". This publication, which contains references to over 3,000 publications on plant disease work in the Caribbean, is intended to serve as a reference source for Plant Pathologists, Nematologists, Agronomists, Research students and other persons interested in Agriculture in the Caribbean.

The Bibliography covers all aspects of plant diseases and their control, including diseases caused by fungi, bacteria, viruses and nematodes. The geographic area covered by the references includes all the territories of the Commonwealth Caribbean. The material covered by the Bibliography dates from the 1880 s to 1980.

The entries were compiled mainly from primary sources, many of which have not been indexed previously. It would be impossible to list all the titles searched; however, the main sources of information were Agricultural News, Tropical Agriculture, West Indian Bulletin, the Journal of the Jamaica Agricul-

tural Society, the Journal of Agricultural Society of Trinidad and Tobago, and the Annual Reports and Publications of the Departments and Ministries of Agriculture throughout the Region. The Secondary sources included Regional bibliographies on agriculture and related topics and computerised literature searches of the Commonwealth Agricultural Bureau data bases. Copies of this bibliography have been sent to all plant protection personnel in the Caribbean.

A book on Plant Disease Diagnosis was prepared by the Specialist to provide plant protection personnel with an introductory handbook for the practical study of plant diseases. The book outlines the basic steps, facilities and procedures which are necessary for the accurate diagnosis of plant diseases.

This publication is especially valuable to laboratory assistants who are being introduced to Plant Pathology for the first time, to give them the rudimentary principles and techniques which are required for plant disease diagnosis.

The Establishment of a Mechanism for Professional Stimulation

The establishment of a society for plant protection in the Caribbean in 1981 responded to the needs of the region for a professional body to give professional stimulation and also to act as a mechanism for communication and coordination of plant protection activities. The society which now has some 121 members throughout the region has as its objectives the following:

- to strengthen inter-governmental and inter-institutional cooperation in plant protection in the Caribbean.
- to establish a forum for the discussion of plant protection issues affecting Caribbean Agriculture;
- to act as a forum for the exchange of ideas and information among plant protection personnel in the Caribbean;
- to promote and stimulate research and teaching in plant protection subjects, viz., Entomology, Plant Pathology, Weed Science, etc. and to ensure that these are integrated into the discipline of plant protection;
- to stimulate discussion and actions to ensure that the Caribbean environment remains free from contamination by pesticides;
- to carry out all other activities which may be associated with preserving the plant genetic resources of the Caribbean from destruction by pests and diseases as may be defined by the Executive Committee.

IICA assisted in the establishment of the Society for Plant Protection in the Caribbean at the Second Regional Meeting of Plant Protection in Latin America and the Caribbean held in Mexico City in October, 1980.

The Society has held two meetings so far. In 1981 it met in Jamaica and discussed urgent plant pest and disease problems in the Caribbean. In 1983, it met in Trinidad and Tobago and discussed the harmonization of pesticide legislation in the Caribbean. A document describing the Society has been prepared and is available.

Technical Support

This involves the direct use of the Specialist expertise in the assistance to the Member States. It involves answers given to questions of a plant protection nature and the provision of a resource person to assist in the solution of Regional problems. Examples of this would be the assistance given to the Barbados Ministry of Agriculture in the preparation of a Plant Quarantine facility for Cocoa, the advice given to Jamaica on the re-organization of the Plant Quarantine System, and on the design and analysis of plant protection experiments; suggestions for strengthening Plant Quarantine in Guyana; Diagnosis of diseases of sugarcane in Haiti and; suggestions for studies on yellow spot disease of sugarcane, Caroni Limited Trinidad and Tobago.

In addition to these specific areas of work a number of studies have been carried out in collaboration with regional and extra-regional institutions.

The following are examples of studies carried out:

- a. An analysis of Plant Quarantine Systems in the Caribbean in collaboration with Animal and Plant Health Inspection Services (APHIS)
- b. Training and Research needs in seed pathology in the Caribbean in collaboration with the Danish Institute for Seed Pathology in developing countries, located in Copenhagen, Denmark.
- c. Study of the pest risks associated with the movement of agricultural produce between St. Vincent, Grenada and Trinidad and Tobago, (in collaboration with Dr. G.V. Pollard of the University of the West Indies).
- d. Study on the economic impact of Moko disease on the economy of Grenada, (in collaboration with Dr. G.V. Pollard of the University of the West Indies).

These studies were designed to generate new information necessary for the implementation of plans within the programme.

Reciprocal Technical Cooperation means using the technical skills of some countries to benefit others, through IICA's action as a means of reciprocal transfer of know-how, and the exchange of technical personnel and useful experience.

Basically using the technical skills available in some countries to benefit others. The International Agency acts only to facilitate and finance in the relationship. This was used successfully during the programme in the following activities.

1. Assistance to Grenada in the Control of Thrips of Cocoa

Thrips have been recognized as a severe problem in cocoa production in Grenada. The Government sought the assistance of IICA and Dr. Eslic Alleyne, Entomologist, Ministry of Agriculture, Barbados was contracted by IICA to provide technical assistance in Grenada. Dr. Alleyne's recommendations for the control of thrips in Grenada have been taken seriously by the Ministry of Agriculture authorities and the Chief Plant Protection Officer has now been seconded to the Grenada Cocoa Association to manage the thrips problem on a full-time basis.

2. *Assistance to the Food and Agriculture Corporation of Trinidad and Tobago in the Assessment of Pest Problems of Banana at Orange Grove*

The Food and Agriculture Corporation of Trinidad and Tobago, an Agency set up for corporate action in the agriculture sector under the aegis of the Ministry of Finance and Planning is cooperating with the Orange Grove National Sugar Company of Trinidad and Tobago in the development of a banana enterprise geared to the production of green banana either for the fruit market or use as a basic carbohydrate food item to partially displace rice and other wheat-derived staples. Based on discussions with the Inter-American Institute for Cooperation on Agriculture (IICA) for close cooperation on technical matters, the Corporation sought the assistance of IICA through its national office in Trinidad and Tobago to evaluate the incidence of pests and diseases in the existing plantings of banana at the estate and to develop a strategy for management of these pests and diseases in the future. The study was carried out during the month of May, 1983. Mr. Frank McDonald, Ministry of Agriculture, Guyana, was contracted to look at the Moko disease aspects of the problem.

Harmonization of Pesticides Legislation in the Region

There has been a dramatic increase in pesticide usage in the Caribbean during the last decade and, as in many parts of the world, there is concern with respect to the potential human and environmental hazards of pesticide use. The concept of the harmonization of pesticide legislation and registration requirements in the region stemmed from the initiatives developed by the FAO in 1977 to seek to harmonize the legislative aspects of pesticide use throughout the world. A meeting to consider the harmonization of pesticide legislation and the registration process in the region was held in Trinidad and Tobago under the auspices of IICA and with financial assistance from the National Agricultural Chemical Association (NACA) and GIFAP.

The meeting considered the status of pesticide legislation in the region and established guidelines for harmonization. The meeting had as its objectives:

- to examine and analyse the status of pesticide legislation in the Caribbean.
- to become familiar with measures currently in operation and to recommend others for standardizing the diverse requirements for pesticide use;
- to prove guidelines to those countries that need to enact legislation to regulate the use of guidelines, norms and technical procedures (chemical, analytical, biological, toxicological);
- to examine the status of establishment or acceptance of the maximum residue levels of pesticide (tolerance) in food in each country;
- to analyse the environmental impact of the large scale application of pesticides in the Caribbean;

- to stimulate training in pesticide registration procedures and in the safe and efficient use of pesticides.

Forty-five delegates from throughout the Caribbean and from Regional and International Organizations attended the meeting.

The meeting recommended, among other things, that the Pesticide and Toxic Chemicals Act of Trinidad and Tobago should be used as a model in the formulation of Regional pesticide legislative actions. Follow-up action to this is now being taken in the development of a Regional Training Programme in pesticide safety in collaboration with the World Bank and the University of Miami, School of Medicine. A 263 page document has been prepared as a result of the meeting.

A Mechanism for Coordination and Cooperation – The Heads of Plant Protection Meeting

The Heads of Plant Protection Meeting which has been held annually since 1981 provided an excellent mechanism for consultation, cooperation and communication in plant protection in the region.

The meetings which are held in a different country each year provide opportunities for the Heads of Plant Protection to visit the countries of the region and to observe the programmes and facilities which exist in the region.

The meetings contribute to:

1. Reduction in the possibilities for duplication of efforts.
2. Establishment of bilateral cooperative programmes in the region.
3. Establishment of a fraternity of plant protection which can be a very important asset in problem solving.
4. Providing guidance to the region programme.
5. Providing a forum for coordination of all technical assistance programmes in the region.

Deepening of the Scope of the Programme by Direct Assistance to National Systems

The scope of the programme has now been deepened by the establishment of national professionals in plant protection in the IICA offices in Dominica, St. Lucia and Grenada. In addition, in collaboration with USAID and USDA/APHIS there are proposals to set up a pest management unit in Grenada. This initiative responds to the need for an effective plant protection capability in the small island states of the region which are embarking on a major thrust in the development of fruits and vegetables for the export markets of North America and Europe. The initiative also responds to the following situation, and I quote from a recent document: "Although chemical pesticides - - particularly insecticides and herbicides - - are being utilized in increasing levels, the pest problems actually seem to be worsening. Annual pest losses in cocoa now approach an estimated \$1 million (U.S.). Leaf spot disease, Moko disease, and root knot nematodes cause crippling losses in banana if expensive chemical treatments are not applied. GCA and GBCS together annually spend \$450,000 - - about 25 percent of their total budget - - for control of cocoa and banana pest". It also responds to the need to have in place a

point of contact for the delivery of technical cooperation in plant protection from International agencies.

In Suriname, a specialist in coconut pests and diseases has been located in the IICA Office in that country to attend to the pressing problems of coconut mainly "Hart Rot disease" and *Castnia* spp. It is hoped that with assistance from other agencies and friendly governments that these initiatives will result in the development of a regional centre for investigations on coconut and oil-palms.

Future Initiatives

1. Preparation of project proposals for a survey of fruitflies in the Caribbean.
2. Preparation of field guides to plant pests and diseases of importance in the Caribbean and bibliography of pests.
3. Development of Third Regional Plant Quarantine Training Course.
4. Survey of the incidence of mango seed weevil in the Caribbean.
5. Workshop on the detection of pests and diseases of fruits in the Caribbean.
6. Establishment of Regional Training Programme in Pesticide Safety.
7. Establishment of a Data Base in Plant Protection for the Caribbean.

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