

Research and Methods

# Information workshop on the phytosanitary situation of citrus in the Caribbean

The CTA and CIRAD organised a 'Regional workshop on the phytosanitary situation of citrus in the Caribbean' from 28 November to 1 December 2000. This was aimed at:

- informing the different countries in the Caribbean of the seriousness of the pests and diseases present or not in the region, and of the presence of existing vectors and control methods;
- proposing the setting up of a Caribbean phytosanitary monitoring unit for citrus enabling each country to benefit from continuous information and to set up a surveillance programme and to define joint control strategies adapted to these island zones.

Caribbean Thirteen countries were represented by officials of their respective ministries of agriculture and by researchers involved in crop protection. IICA and CARDI and the IACcitrus network were NET also represented. Each country gave an outline panorama of citrus growing, with emphasis on the phytosanitary aspects. Different CIRAD and INRA participants then described the main sanitary problems concerning citrus in the Caribbean area.

A day (30 November) was devoted to visiting Mr Alingrin's orchard at Sainte-Rose and laboratory diagnosis demonstrations at the CIRAD research station at Neufchâteau.

### Participating countries

Thirteen of the 15 countries invited were represented: Antigua, Barbados, Cuba, Dominican Republic, Jamaica, Dominica, St Lucia, Guyana, St Vincent, Suriname, Martinique, Guadeloupe and French Guiana. Trinidad and Haiti had responded favourably but had last-minute difficulties and could not attend.

#### Participants

Professor J.M. Bové (INRA/ University of Bordeaux), Monique Garnier (INRA, Bordeaux), Sandrine Eveillard (INRA, Bordeaux), J. Etienne (INRA, Guadeloupe), C. Vernière (SRA INRA/CIRAD, Corsica), S.Quilici (CIRAD-FLHOR, Réunion), Y. Bertin (CIRAD-FLHOR, Martinique), C. Urbino (INRA/CIRAD, Guadeloupe), P. Bertrand (Plant Protection Service, Martinique)

The operation received financial support from CTA, the prefecture of Guadeloupe and the French Ministry of Foreign Affairs (FIC and regional co-operation funds).

#### The four serious citrus diseases that threaten the Caribbean zone





Cirad-flhor

#### Tristeza

The tristeza virus and its most effective aphid vector reached the Caribbean and the French West Indies from Central and South America. In Brazil, the disease has destroyed 20 million orange trees grafted on sour orange stock. Control involves the use of tolerant rootstocks and/or tolerant varietal combinations.

Stem-pitting on rootstock

#### Citrus canker

Citrus canker is caused by the bacterium *Xanthomonas axonopodis* pathovar *citri* (Xac), which probably originated in India. Strongly present in the Far East and in several parts of South America, it has recently been detected in southern Florida. The Caribbean countries are therefore directly concerned by this serious problem, which precludes all fresh fruit exports from an infected zone. CIRAD has performed research on the disease for several years in Réunion. Its epidemiology is now well known and early detection and strain characterisation tools are available.



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#### Citrus variegated chlorosis

The disease broke out in Argentina in 1984 and arrived in Brazil in 1988, where it has infected the citrus regions in Minas Gerais, Parana and especially Sao Paulo state (80 million of 250 million orange trees infected). It is caused by the xylem bacterium Xylella fastidiosa. Its broad geographical distribution results from its spread by several leafhoppers. It is beginning to have an effect on citrus fruit production in Brazil. The Bordeaux INRA/CIRAD team has identified the causal agent of the disease and has developed a kit for the serological detection of the bacterium.

#### Huanglongbing (Citrus greening)

The disease is caused by a Liberobacter located in the phloem of affected trees. It is spread by psyllid insects. The citrus psylla Diaphorina citri, the vector of the disease, has just arrived in Guadeloupe, doubtless from South and Central America, where it is widespread. It also reached Florida a few months ago. The Bordeaux laboratory has also performed most of the work on this bacterial disease.

#### Pests



#### Psyllid insects

Fruit fly

The psyllid insects Trioza erytreae and Diaphorina citri that are the vectors of greening have received in-depth study for some 30 years, especially in Réunion where biological control with the introduction of parasitoids specific to the two insects has totally eradicated Trioza erytreae and reduced Diaphorina citri to a few plants close to citrus. These excellent results could very probably be used in the Caribbean, as is seen from the preliminary results obtained in Guadeloupe.

The Caribbean islands are fortunate enough to have only small numbers of fruit flies and most are not very active on citrus. The most widespread is Anastrepha obliqua. In contrast, a very broad variety of fruit flies is found on the continent and some are very dangerous for citrus. Prevention and control methods exist and can be implemented in the region.



▲ Ceratitis capitata



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#### **Plant material**

The importance of the sanitary quality of the plant material supplied to farmers was demonstrated. The work carried out for many years by INRA and CIRAD in Corsica has enabled the development of techniques for the elimination of diseases and the certification of plant material, ensuring considerable safety for the movement of plant material. A quality assurance and traceability approach is currently reinforcing certification. In parallel, reflection is in progress in the different French overseas departments in order to set up a minimum quality standard for citrus seedling producers. Application of this standard should be completed rapidly and could soon be followed by the application of full certification.

#### The phytosanitary monitoring unit and the conclusions of the workshop

All the participants gave their support for a regional phytosanitary project for citrus in the Caribbean. The needs expressed concern in particular training and information and the enhancing of scientific and technical capability in the zone. The various discussions showed the need to form a regional working group with the following missions:

- definition of priority activities: risk inventory and evaluation, setting up a surveillance and prevention network, definition of pest control and plant material production methods;
- inventory of the human, structural and institutions resources and equipment and current projects;
- definition of the tools to be used: technology and/or methodology transfer, standardisation and homogenisation of procedures, development of diagnosis facilities within the framework of reference laboratories to be strengthened. centralisation and management of information (database, forum, etc.), dissemination of homogeneous information, identification keys and extension material.

The working group will be linked to the existing RIAC/IACNET network and management will be entrusted to the RIAC representative. Appointment of various members: Jamaica, Dominica, Cuba and the Dominican Republic volunteered, as did CARDI for the information aspect and INRA/CIRAD for scientific support.

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