

Survey for Citrus Diseases in French Guiana

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ABSTRACT. The presence on the South American continent of major threats for citrus orchards in French Guiana required a survey to assess the situation of citrus pathogens in the territory. Because there is a risk of introduction of pathogens from neighbouring countries, orchards in the different areas of production were investigated for citrus pathogens on the basis of field symptoms. *Citrus tristeza virus* is present in all areas, and psorosis symptoms were observed in one orchard. Other diseases such as Huanglongbing, citrus variegated chlorosis, sudden death and leprosis were not observed.

The territory of French Guiana is located on the northern coast of South America, and is bordered by two countries, Surinam to the west and Brazil to the south and east. According to the French Ministry of Agriculture (1), the citrus industry of French Guiana in 2000 consisted of approximately 1,200 ha in the 300 x 50 km agricultural zone along the coast. The main varieties grown are Tahiti lime on volkamer lemon (514 ha) which is mainly for export, sweet orange on Carrizo citrange (462 ha), mandarins on Carrizo citrange (166 ha), and 72 ha of other varieties. Tahiti limes are exported, while the other varieties are for local consumption.

Almost all the propagative material is issued from certified material from SRA INRA-CIRAD in Corsica. Growers import seeds and grow their own trees for planting. It is necessary to have an official authorization to import budwood, and some growers cut budwood from local trees, which are probably all infected with *Citrus tristeza virus* (CTV). Some trees enter illegally from Surinam; they are generally grafted on rough lemon.

Because of the geography of the area, there is a lot of uncontrolled traffic through national borders. Presently there are few exchanges with the center and the south of Brazil, but there is a project which will road and traffic, and this could result in movement of citrus pathogens into French Guiana. It is important therefore to have a view of the current situation.

This survey was initiated and funded by the European Commission and the French Ministry of Agriculture under the programs for the control of organisms harmful to plants and plant products in the French overseas departments (“POSEIDOM”) (decision 2006/102/CE). The Phytosanitary Services (Service de la Protection des Végétaux) in Cayenne, French Guiana, organized the survey in October, 2006. All areas of citrus production were visited. A total of 19 orchards were surveyed; Cacao (five orchards), Piste Coralie-Corossony (five), St. Georges-Regina-Crique Marguerite (five), and St Laurent du Maroni (five).

Tristeza symptoms were present in the whole area where severe symptoms of stem pitting on Tahiti lime, stunting on Mexican lime and *Citrus hystrix* (Fig. 1). One orchard of Minneola tangelo was found with symptoms of psorosis in Javouhey, near Saint Laurent du Maroni. The efficient vector of CTV, *Toxoptera citricida* has been recorded in French Guiana (2). The diagnostic of *Citrus psorosis virus* has not yet been confirmed. It appears that this form of psorosis had not spread because only one variety showed symptoms. According to the producer, the trees originated from Surinam and had been planted in a grove since uprooted. However, budwood had been taken to produce trees for a second orchard now more than 10 yr old, and a third, 6 yr old. All the trees of these two orchards show symptoms of bark scaling (Fig. 2).



Fig. 1. *Citrus hystrix* stunted by severe strain of *Citrus tristeza virus* in Cacao.



Fig. 2. Bark scaling on trunk of *Minneola tangelo* in Javouhey.

The other major citrus diseases present in South America (Huanglongbing, citrus variegated chlorosis, leprosis, blight, sudden death, canker, black spot) were not found in this survey. Despite the wet conditions, *Phytophthora* seems to have a

very low incidence. Decay probably due to *Corticium salmonicolor* has been found but it was not active at the time of the survey. The fruit of all the mandarin varieties are damaged by scab.

LITERATURE CITED

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