SHORT COMMUNICATIONS

Citrus tristeza virus in Corsica and its Eradication

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ABSTRACT. *Citrus tristeza virus* (CTV) has been detected in Corsica on three occasions. The first time was in 1981 when all trees at the San Giuliano citrus experiment station were tested by ELISA, and two Marumi kumquat trees tested positive. This CTV strain, K123, is symptomless on Mexican lime which is why biological indexing did not detect the infected trees earlier. The second detection occurred in 1994 when some ornamental calamondin trees in nurseries were found to be infected, followed by a survey in which 7.1% of all calamondin trees in the area (Borgo-Vescovato) were found to be infected; CTV was also found in lemons topworked to calamondin, and some nearby Clementine mandarins which possibly were infected via aphids. The third detection was in 1997 when two Clementine orchards in Ghisonaccia were found to contain CTV-infected trees. In all cases, infected trees were removed in attempts to eradicate the virus in Corsica.

Citrus tristeza virus (CTV) has been found to infect citrus trees in Corsica on three occasions. The first instance concerned CTV strain K123 infecting two of three old line (line K123) Marumi kumquat trees on rough lemon introduced in 1959 from Morocco into the San Giuliano citrus experiment station (Fig. 1) (1, 2). The three trees, designated T22, T23, and T24, indexed negative for CTV on Mexican lime in 1963. However, in 1981, when all trees at the San Giuliano citrus experiment station were submitted to ELISA for CTV detection, only two trees, T22 and T24, but not tree T23, were found to be CTV-positive. CTV strain K123 is now known to be symptomless in Mexican lime (2), and studies to characterize it have been undertaken (1, 3). Orchards propagated from these kumquat trees contained 25-71% CTV-infected trees. By repeated indexing of all trees in infected orchards, no spread of CTV strain K123 has ever been observed. By 1995, all K123 kumquat orchards had been removed.

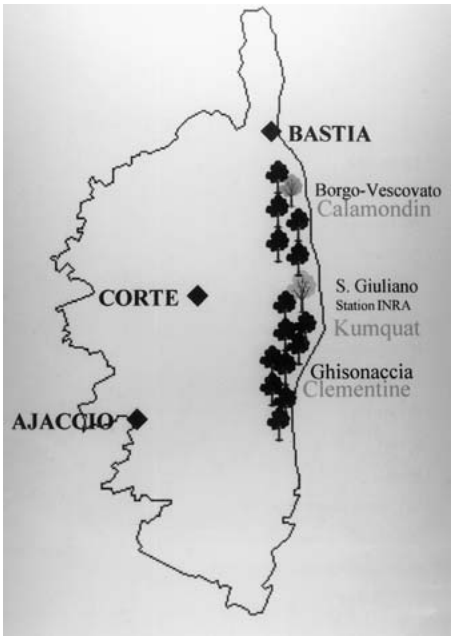

Fig. 1. Map of Corsica showing locations of *Citrus tristeza virus*-infected trees.

In the second instance, CTV-infected, ornamental calamondin trees were discovered by the Regional Plant Protection Services in the spring of 1994 at Borgo-Vescovato (Fig. 1), south of the Bastia airport, in three calamondin nurseries. The calamondin line was probably introduced from Florida, in the early 1980s. Two of the nurseries had parent tree orchards for nursery tree production by marcottage

(air layering). These parent trees also provided budwood for graft-propagation of calamondin trees in the third nursery. ELISA and direct tissue immunoprint were used to identify the infected trees in the nurseries, as well as the surrounding orchards. A total number of 39,200 nursery trees were tested during the survey. Of 8,557 calamondin trees, 612 (7.1%) were found infected. A few CTV-infected lemon trees, produced by topworking calamondin, were also detected in the nurseries (39 of 10,512, i.e. 0.4%). Clementine, grapefruit and sweet orange trees, numbering 11,931, of all 17 orchards surrounding the nurseries were also analyses for CTV, but only one 30 yr-old Clementine orchard of 848 trees contained eight infected trees on repeated indexing in 1995, and one additional tree in 1996. This orchard was within 200 m of one the infected calamondin parent tree orchards used for marcott production, and the nine Clementine trees may have been infected through aphid transmission. The number of infected trees over the total number of trees tested was 408/11,331 in 1994, 249/19,019 in 1995, and 3/24,282 in 1996. All infected trees have been removed. Additional surveys during the following years did not reveal any other infected plants in this area. The CTV calamondin strain, Cal-1, has been partially characterized and compared with kumquat CTV strain K123 (3). The two strains are clearly different.

A third tristeza focus was discovered at the end of 1997 at Ghisonaccia (Fig. 1), south of the oriental plain, in two Clementine orchards belonging to the same grower. The first orchard, planted in 1968, had 733 trees on sour orange of which 10 trees were infected. The second orchard had 895 trees on trifoliate orange or citrange. Two-thirds of the trees were planted in 1973 and contained 22 infected trees. In the remaining third, the trees were planted in 1996 and four were found to be infected; they were close to the other 22 infected trees, suggesting aphid transmission. The infected trees showed no symptoms, even when grafted on sour orange. All infected trees have been removed. In eight nearby Clementine orchards containing 5,100 trees planted between 1966 and 1986, no infected trees were detected. The origin of this strain is unknown.

The case of the infected Clementine trees at Ghisonaccia seems to be the most alarming one, since infected trees were symptomless even when grafted on sour orange, and the origin of the CTV strain involved is unknown. This suggests that similar CTV foci might exist elsewhere in Corsica, and search for such foci must continue.

LITERATURE CITED

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