

CITRUS DISEASE SPOTLIGHT

Citrus tristeza

By Ron Brlansky

Citrus tristeza is an often forgotten problem for Florida citrus growers. In the 1950s and 1960s, sour orange was the main rootstock in Florida. In the late 1960s, decline strains of citrus tristeza virus (CTV) were introduced into the state, and outbreaks of tristeza quick decline (figures 1 and 2) were identified. The decline did not occur everywhere or every year since the main aphid vector at that time was the melon aphid (*Aphis gossypii*), and its ability to transmit these severe decline strains of CTV was limited. Also, populations of the aphid would rise and decline in different years.

In some areas, sour orange was replaced as a rootstock with other rootstocks such as rough lemon. However, rough lemon was not without its problems; it is highly susceptible to *Phytophthora* root rot and citrus blight.

In 1995, the brown citrus aphid (BCA) (*Toxoptera citricida*) was found in Florida. This aphid is the most efficient vector of CTV, and trees on sour orange declined rapidly as did the number of propagations on this rootstock.

If the history of tristeza has any validity, the first thing that occurs in an area is the introduction of decline strains of CTV. These strains spread with endemic aphids, and limited decline on sour orange occurs. This is what has been seen in Florida historically. Second, the BCA is introduced and decline strains are more easily spread, and more decline and tree dwarfing on sour orange rootstock occurs. Normally, at this time, sour orange is replaced as a rootstock. Third, stem pitting strains are found.



Figure 1 (above). Tristeza decline trees in South Florida in 1986. Photo courtesy of S. M. Garnsey.



Figure 2 (left). Close-up figure of tristeza quick decline tree on sour orange rootstock.

These strains are either introduced or were hidden within the population of CTV strains. These strains are then spread by BCA, causing reduced fruit size and yield and, in some cases, reduced tree vigor (figures 3,4 and 5).

In Florida, this has not been seen yet. According to the Division of Plant Industry's Bureau of Budwood Registration, sour orange was the fifth most propagated rootstock (180,000 trees) in 2011, accounting for 5.74 percent of the total nursery trees. Fifty percent of the propagations were grapefruit. According to Bureau Chief Mike Kesinger, sour orange propagations so far this year rank fourth with 190,000 total propagations, of which 130,000 are grapefruit.

To date, I am unaware of any reported decline or stem pitting problems attributed to CTV. However, severe CTV is still present, and growers should remain informed as to the potential problems it may cause.

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Figure 3. Stunted or dwarfed sweet orange trees on Swingle rootstock infected with a severe strain of stem pitting CTV. The trees were 17 years old.



Figure 4 (left). Reduced fruit size of sweet oranges from trees infected with a severe stem pitting strain of CTV
Figure 5 (above). A stem showing the severe stem pitting due to the infection with a severe stem pitting strain of CTV