

Citrus tristeza virus in Australia

Citrus tristeza virus (CTV) is the most devastating viral disease affecting citrus globally.

CTV is a complicated virus and exists in hundreds of different forms known as isolates. Most trees are infected with more than one isolate, and each isolate may contain more than one strain of CTV. Individual isolates can cause different symptoms in different citrus varieties, and many isolates of CTV can be found in Australian citrus trees that cause no disease symptoms. However, the symptoms caused by other isolates can vary from mild to severe. Two economically significant symptoms caused by CTV in the field are stem pitting and decline.

CTV infection can lead to reduced yield and tree decline

Infection with decline-inducing isolates causes an incompatibility between orange or mandarin scions when grafted onto sour orange rootstocks. The virus-induced incompatibility leads to slow or quick decline and eventual death of affected trees. Other symptoms include nutritional deficiencies and defoliation.

In Australia, CTV can cause stem pitting in lime, grapefruit or sweet orange cultivars and some rootstocks, but with a high degree of specificity. For example, isolates that induce severe stem pitting symptoms in oranges do not cause symptoms in mandarins. Trees affected by stem pitting have poor growth, brittle branches, and reduced yield and fruit size. Pits range in size from large grooves to small indentations; growth is more severely affected by smaller pits. Orange stem pitting isolates of CTV have only been reported in Queensland.



Stem pitting symptoms on a grapefruit tree



Healthy sweet orange tree (L) and a tree infected with orange stem pitting (R)

Do not move citrus propagation material from Queensland to other states to avoid spreading ORANGE STEM PITTING



A healthy nursery tree (R) and one infected with a quick decline isolate of CTV (L)



Tree protected by a mild CTV isolate (L) and an unprotected tree infected with severe CTV (R)

Citrus virus diseases have NO CURE

Citrus tristeza virus is spread in infected budwood (but not seed); therefore, it is important that propagation material is not taken out of Queensland nor imported illegally. Aphids also spread CTV, and the most efficient aphid vector is the brown citrus aphid (*Toxoptera citricida*) which is found in Australia.

There are no cures for virus infections. To reduce the impact of severe CTV isolates, manage aphid vector populations and use high health status budwood from Auscitrus. Grapefruit budwood supplied by Auscitrus has been sourced from trees inoculated with a mild protective isolate of CTV to protect trees against infection from severe grapefruit stem pitting isolates. In Australia, there is no commercially available mild isolate of CTV to protect oranges against severe stem pitting.



Use healthy budwood from Auscitrus



Brown citrus aphid (*Toxoptera citricida*) can transmit CTV

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