



Papaya Ringspot Disease Confirmed in French Polynesia

Papaya ringspot disease, caused by the papaya infecting strain of papaya ringspot virus (PRSV-P), has been confirmed in French Polynesia. A papaya leaf sample collected from Paea, Tahiti, tested positive in an enzyme linked immunosorbent assay (ELISA) test for papaya ringspot virus (PRSV) conducted by Dr John Thomas, Department of Primary Industries, Queensland, Australia, in late 2002. This confirmation followed occasional observations of ringspot disease –like symptoms on papaya on the island of Tahiti since 1994 and once on the island of Moorea in 2001.

Successive surveys in March-May 2003 by scientists from Service du Développement Rural (SDR), Département de la Protection des Végétaux (DPV) and CIRAD were conducted to determine the distribution of the disease in French Polynesia. Papaya leaf samples were collected from a number of locations on the islands of Tahiti and Raiatea (Society group), Rurutu (Austral group), and Hiva Oa, Nuku Hiva, Tahuata, Ua Huka, Ua Pou (Marquesas group) and tested by ELISA at the SDR/CIRAD laboratory in Raiatea. This survey returned seven more PRSV positive ELISA test results from five more locations on Tahiti. No disease symptoms were observed on the other islands surveyed and all 26 samples collected tested negative in PRSV ELISA tests. The virus is suspected to be present on the island of Moorea but is yet to be confirmed by ELISA testing.

PRSV-P infected trees are less vigorous, produce few fruit and the fruit quality, especially flavour, is reduced. It is the main production problem in many countries in southeast Asia and South America. Once the disease reaches a new location, aphids feeding on plants quickly spread it around to other plants. Experiments in the Philippines have apparently demonstrated that the disease can be transmitted at a very low rate in papaya seed. PRSV-P was confirmed in southeast Queensland, Australia, in 1991, Hawai'i in 1992, and Saipan in Northern Mariana Islands and Guam in 1994.

Papaya ringspot virus (genus *Potyvirus*) exists in two forms. One causes disease (yellow to green mosaic symptoms on leaves) only in cucurbits and this is known as the W (cucurbit infecting) strain or PRSV-W. This virus is widespread on cucurbits through much of the world and was previously known as watermelon mosaic virus-1. The papaya infecting strain (PRSV-P) infects both papaya and cucurbits. The two viruses are very closely related and there is presently no way to distinguish the two forms of this virus other than by host range testing.

Symptoms include a strong yellow pattern (mosaic and mottling) on leaves (Fig. 1), plus blistering and leaf distortion which can sometimes become a 'shoestring' symptom where a small amount of leaf tissue remains around major leaf veins. Dark green on lighter green water soaked streaks can be seen on leaf stalks and stems. The key distinctive symptoms are those seen on fruits: dark green on light green target-like rings, spots and C shaped markings (Fig. 2). These become dark orange-brown as the fruit ripens and changes colour.



Figure 1: Yellow mosaic pattern.



Figure 2: Target-like spots and C-shaped markings seen on the fruit

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Communications of pest and disease incidents of interest to the Pacific region should be sent to: **Plant Protection Service, Secretariat of the Pacific Community, Private Mail Bag, Suva, Fiji Islands.** Tel:(+679) 3370733; Fax: (+679) 3386326; [E-mail:pps@spc.int](mailto:pps@spc.int)