

Fact sheet

Potato spindle tuber viroid

What is potato spindle tuber viroid?

Potato spindle tuber viroid (*Pospiviroid*; PSTVd) is a pathogen that poses a threat to potato, tomato and eggplant crops in Australia.

Symptom development is dependent on the strain of the viroid in conjunction with the host species and stage of development. In potatoes, severe PSTVd strains have caused losses of up to 65% in tuber number and size. In tomatoes, losses of 40-50% in yield have been reported.

What does it look like?

Infected tubers have pointed ends, giving them a spindle shape with a round cross-section. Infected tubers are also often smaller than healthy ones.

Above ground symptoms of PSTVd infection of potato include a reduction in leaf size, then stems which develop in a more upright manner, and an increase in the length of the internodes (stem regions between the leaves). These symptoms are usually only present under high infection levels.

Infection of tomato causes the foliage to become mottled, and yellow or purple, and the plants are stunted. Fruit produced from these plants is smaller, misshapen and will fail to ripen.

Symptoms can be mild at first but will become more severe with each successive generation.

What can it be confused with?

PSTVd symptoms can be confused with nutrient deficiency or toxicity, spray damage, insect damage or plant viruses.



Central Science Laboratory, Harpenden Archive, British Crown, Bugwood.org

In tomatoes the virus causes severe yellowing of leaves



R. P. Singh, Bugwood.org

In potatoes the smaller leaves and thinner stems of infected plants (middle plant) are difficult to distinguish from healthy plants (left and right)



Plant Protection Service Archive, Bugwood.org

Infected tubers (right) are typically smaller than healthy tubers (left) and pointed at the ends



What should I look for?

Above ground symptoms of leaf distortion and discolouration, together with modified growth patterns are normally only detected under heavy infection levels. Observation of the deformed potato tubers when harvested is the most likely method of detecting this pathogen.

How does it spread?

Mechanical transmission of the viroid, for example by machinery, people, tools and clothing that has been in contact with infected plants, is the most likely method of spread.

Where is it now?

The disease is present in Asia, Africa, North America, South America, Europe and New Zealand.

PSTVd has been reported in Western Australia and Queensland. South Australia is currently running an eradication program for PSTVd and all other Australian states and territories have been reported to be free of the disease.

How can I protect my farm from potato spindle tuber viroid?

Farm hygiene is crucial in minimising the risk of PSTVd introduction through mechanical transmission. Only use planting material from reliable sources and ensure there is traceability on all seed supplies purchased.

If you see anything unusual, call the Exotic Plant Pest Hotline



PSTVd infection reduces the size and yield of potato tubers

European and Mediterranean Plant Protection Organization Archive, Bugwood.org



Potato tubers showing symptoms of infection with PSTVd

William M. Brown Jr., Bugwood.org



Reduced size and elongated shape of infected potato tubers

Dr. Weidemann, Biologische Bundesanstalt für Land- und Forstwirtschaft, Bugwood.org

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