



Fact sheet: Psa, non-New Zealand strains

Different outbreaks of Psa have been caused by five related, but genetically distinct lineages of *Pseudomonas syringae* and it is likely that many more exist in wild kiwifruit populations (see table below). Psa1 (Japan, Italy) and Psa2 (Korea), are of particular concern as these strains are more virulent against Hayward cultivars than the Psa-V strain currently in New Zealand.

New genetic material of any strain is a concern due to the potential of horizontal gene transfer and the impact

	Biovar 1	Biovar 2	Biovar 3 (Psa-V)	Biovar 5	Biovar 6
Current distribution	Japan Italy	Korea	Europe - New Zealand, Chile & China, Japan, and Korea	Japan	Japan - Extremely limited distribution
Impact	Significant economic impact. Hayward may be most susceptible	Significant economic impact	Virulent strain, gold cultivars most susceptible	Low economic impact	Low impact at this point – limited distribution

Signs and symptoms

Psa can be recognised visually by its characteristic symptoms (leaf halos, red exudate, cane die back) and verified through PCR analysis. PCR tests are available for non-New Zealand biovars and any symptomatic material in New Zealand that returns a non-detected result for Psa-V (Psa3) is also tested for Psa1 and Psa2.

Image: symptoms of Psa1 on Hayward in Japan



Distribution and climate range

Psa is a bacterium that is thought to have existed in kiwifruit for thousands of years. It is most active between 10 to 20°C and is limited at temperatures above 25°C. There is no evidence to suggest the various strains respond to a different temperature or climatic range.

Virulent strains not found in NZ are currently restricted to Japan, Italy and Korea.



Control

Control measures are well documented and pertinent to each growing region, but based on consistent principles of limiting spread and keeping inoculum loads low.

**What should you do if you think you have seen vines displaying these symptoms?
Phone MPI on 0800 80 99 66 or KVH on 0800 665 825**