

# 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 new strains may have on new or existing kiwifruit cultivars.

New strains of Psa are also expected to evolve within New Zealand of which the characteristics and virulence to new and existing kiwifruit cultivars are unknown. Good biosecurity practices are vital to prevent the spread of any new strains between orchards and growing regions.

	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.



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CATCH IT



SNAP IT



REPORT IT

## 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.

## 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 New Zealand are currently restricted to Japan, Italy and Korea.

