

Pierce's disease

What is Pierce's disease?

Pierce's disease is a deadly disease of grapevines caused by the bacteria *Xylella fastidiosa*. This bacterium lives in the water conducting system (xylem) of the grapevine and is spread between plants by xylem-feeding leafhoppers known as sharpshooters. Glassy-winged sharpshooter, another exotic plant pest, is a key vector.

What should I look for?

Plants infected by Pierce's disease show symptoms of water stress, which includes browning and loss of leaves, lignification of canes and fruit raisin. The characteristic symptom of leaf scorch is observed in late summer and autumn and includes marginal leaf scorch (browning) that is frequently bordered by a red or yellow halo. The outer leaf area may dry suddenly while the rest of the leaf remains green. Affected leaves are less vigorous and smaller than healthy leaves. Ultimately, entire leaves may turn brown and drop, leaving the petioles attached to the plant.

Shoot growth of infected plants also progressively weakens and tips of canes and roots may also die back as symptoms become more pronounced. Symptoms are usually more obvious in grapevines that are stressed by high temperatures or drought conditions.

Flower clusters on infected grapevines may set berries but these usually dry up before reaching maturity. Diseased stems often mature irregularly with patches of green and brown tissue, which are known as 'green islands', becoming visible.

What can it be confused with?

While the symptom of scorched leaves can be confused with chloride (salt) toxicity, the occurrence of several symptoms, such as leaf drop, lignification of canes and fruit raisin, provides a large degree of confidence that Pierce's disease is affecting the grapevines.



Alex. H. Purcell, University of California - Berkeley,
www.Bugwood.org

Pierce's disease of grapevine; spring symptoms in Chardonnay, with a healthy leaf on the left



California Department of Food and Agriculture

Grapevine leaves showing scorch-like symptoms from Pierce's disease



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Scorched leaves on grapes are a key symptom of Pierce's disease



How does it spread?

Pierce's disease is transmitted by grafting infected propagation material onto healthy rootstocks and by xylem-feeding leafhoppers. Pierce's disease is not transmitted through contaminated pruning equipment or by seed transmission.

Where is it now?

Pierce's disease in grapevines occurs in North America, Central America and some parts of north-western South America.

How can I protect my vineyard from Pierce's disease?

Only source high health status (preferably certified) plant material from reliable and accredited suppliers. Check your vineyard frequently for the presence of new pests and investigate any sick grapevines for unusual symptoms. Make sure you are familiar with common grapevine pests so you can tell if you see something different. Keep records of anything unusual and ensure all staff and visitors adhere to on farm biosecurity and hygiene practices.

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

**EXOTIC PLANT PEST HOTLINE
1800 084 881**



'Green islands' on a grapevine cane, surrounded by brown necrotic lesions

John Hartman, University of Kentucky, www.Bugwood.org



The Glassy-winged sharpshooter is the main vector of Pierce's disease among grapevines

Royce Garcia III, USDA Agricultural Research Service, www.Bugwood.org



Berries usually dry out and shrivel up before reaching maturity

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