Sudden oak death

EXOTIC DISEASE – CALL THE EXOTIC PLANT PEST HOTLINE IF SUSPECTED

Description

Sudden oak death is a serious disease that affects over 100 species of plant. Cool, moist conditions favour the survival, infection and spread of *Phytophthora ramorum*.

Three different disease syndromes can be caused by *P. ramorum*: stem or bole canker (known as Sudden oak death or SOD), leaf blight (known as Ramorum leaf blight) and twig blight/dieback (known as Ramorum shoot dieback). Individual plant species can display more than one syndrome of the disease.

Primary hosts

Susceptible hosts include trees (both hardwood and conifer species), shrubs, herbaceous plants and ferns. Of particular concern to Australia are the field observations and pathogenicity tests that show a number of Australian genera from a range of families are highly susceptible to *P. ramorum*, including species of *Eucalyptus* such as Cider gum (*E. gunnii*) and Mountain ash (*E. regnans*).

Symptoms

Sudden oak death: Symptoms of SOD on large trees include cankers on the lower trunk that have brown or black discoloured outer bark and bleeding sap. Sunken or flattened cankers may occur beneath bleeding areas. When the outer bark is removed from bleeding cankers, mottled areas of necrotic, dead, discoloured inner-bark tissues can be seen. Black 'zone lines' are often present within and around edges of the necrotic areas. Cankers develop before foliar symptoms become evident and crown death appears rapid.

Ramorum shoot dieback and leaf blight: Shoot dieback is characterised by blackened shoots, with or without foliage attached. Symptoms of leaf blight include diffuse brown to dark-brown spots or blotches with fuzzy margins, frequently at the leaf tip (where moisture can accumulate and remain for extended periods encouraging infection). Eventually, entire leaves can turn brown to black and may fall prematurely.

Bleeding canker on Tan oak infected with *Phytophthora ramorum*

Bark removed showing mottled areas of necrotic, dead discoloured inner-bark

Twig dieback on Tan oak

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What it can be confused with

Bleeding cankers with dark stained wood under the bark can occur on the trunks of several plant species in Australia caused by other pathogens such as *Botryosphaeria*, other *Phytophthora* species and Chestnut blight *(Cryphonectria parasitica)* (introduced into Victoria in 2010, where efforts to eradicate it are ongoing). However, *P. ramorum* appears to attack only aerial plant parts and disease symptoms have not been detected below the soil-line.

Armillaria species can also cause bleeding cankers, but can be easily distinguished by the white mycelial fans under the bark of infected trees. Other exotic pathogens such as Chrysoporthe canker (*Chrysoporthe cubensis)* and Teratosphaeria stem canker *(Teratosphaeria zuluense)* can also cause bleeding cankers.

Other aerial *Phytophthoras, Colletotrichum, Botryosphaeria* and *Botrytis* may cause foliar symptoms similar to those of Ramorum dieback. Abiotic factors such as sunburn may also give similar symptoms although in these cases a defined margin is usually expressed.

Plant part affected

The pathogen affects the stem, shoots and leaves of infected hosts.

Age of plant

The size and age of the plant displaying symptoms depends on the host species.

Time of year pest is most likely to be seen

Wet, cool periods support the growth of the pathogen.

Further information

Ireland KB, Hueberli D, Dell B, Smith IW, Rizzo DM and Hardy GESJ (2012) Potential susceptibility of Australian flora to a NA2 isolate of *Phytophthora ramorum* and pathogen sporulation potential. *Forest Pathology* 42: 305–320.

Ireland KB, Hueberli D, Dell B, Smith IW, Rizzo DM and Hardy GESJ (2012) Potential susceptibility of Australian native plant species to branch dieback and bole canker diseases caused by *Phytophthora ramorum. Plant Pathology* 61: 234–246.

Ramorum leaf blight on California laurel

P. ramorum may be also confused with exotic pathogens that also cause bleeding cankers e.g. *Chrysoporthe* canker *(Chrysoporthe cubensis)*

Kliejunas JT (2010) Sudden oak death and *Phytophthora ramorum:* a summary of the literature. General Technical Report. Pacific Southwest Research Station, USDA Forest Service. Available from **www.suddenoakdeath.org/wp-content/uploads/2010/03/psw_gtr234.pdf**

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

EXOTIC PLANT PEST HOTLINE
1800 084 881

PHA22-031