

Pine pitch canker

Description

Pine pitch canker is a disease of Pines which follows infection by the fungal pathogen *Fusarium circinatum*. This fungus is thought to have originated in Mexico. In the United States the disease was first recorded in 1946 and has also been recorded in Japan, South Africa, Chile, Spain and Italy. It can infect the vegetative and reproductive parts of susceptible trees of all ages. The disease is associated with reduced wood production and can result in high levels of mortality causing substantial economic losses.

Primary hosts

Some 57 species of *Pinus* are considered susceptible to *F. circinatum* as well as Douglas fir. Research suggests Radiata pine is likely to be the most susceptible species.

Symptoms

Wilting and yellow-green discolouration of needles are usually the first symptoms of Pine pitch canker. Affected needles subsequently turn red, shoots droop and branch dieback occurs away from the point of infection. Branch dieback progresses throughout the crown. Copious resin typically bleeds from infection sites resulting in a characteristic honey-coloured appearance. In young trees infection can occur close to ground level, causing stem girdling and subsequent mortality. In older trees large, sunken stem lesions can develop where the bark has been killed. Small, salmon pink fruiting structures called sporodochia may sometimes be observed on the bark of affected stems.

What it can be confused with

Pitch canker can be confused with Shoot wilt caused by *Diplodia sapinea*, due to the general appearance of shoot blight and needle discolouration. However, *Diplodia* infection causes a characteristic blue stain in affected wood, and fruiting bodies are black.

Fusarium lateritium has been observed to cause similar symptoms in Radiata pine in Tasmania, including shoot dieback, resinosis and visually identical sporodochia. It can only be distinguished from *F. circinatum* by DNA analysis. Any suspect symptoms should be reported.



Needle discolouration and shoot dieback caused by Pine pitch canker on Radiata pine



Resin soaked tissue



Copious resin bleeding at infection site



Plant part showing symptoms

Needles and shoots typically show symptoms, but as the disease reaches an advanced state the main stem in older trees can become infected. The disease can infect all vegetative and reproductive parts including shoots, branches, cones, seeds, stems and exposed roots.

Age of plant

Seedling to mature trees can be infected.

Time of year pest is most likely to be seen

In southeast United States symptoms appear in autumn, and continue through winter and spring. In the Mediterranean climate of California, branch tip cankers tend to progress faster in spring than in autumn. Temperature and moisture both affect spore germination and infection. Ideal temperatures appear to be between 20–25°C, and high ambient humidity is generally more conducive to infection. Various stress factors can predispose trees to infection. In Australia, disease expression is likely to be more pronounced in warm, moist climates.

Further information

Dreaden T and Smith J (2013) Pitch canker disease of pines. Publication number FOR236. University of Florida, Florida. Available from <http://edis.ifas.ufl.edu/fr298>

Hammerbacher A (2006) Biology and epidemiology of *Fusarium circinatum*. Master of Science dissertation, Department of Microbiology and Plant Pathology, University of Pretoria, Pretoria. Available from <http://repository.up.ac.za/bitstream/handle/2263/25707/dissertation.pdf?sequence=1>

Wingfield MJ, Hammerbracher A, Ganley RJ, Steenkamp ET, Gordon TR, Wingfield BD and Coutinho TA (2008) Pitch canker caused by *Fusarium circinatum* – a growing threat to pine plantations and forests worldwide. *Australasian Plant Pathology* 37: 319–334.



Symptoms of Pine pitch canker

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

**EXOTIC PLANT PEST HOTLINE
1800 084 881**

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