PITCH CANKER

Causal agent: *Fusarium circinatum*

Hosts: *Pinus radiata*, *P. patula* and *P. greggii* are highly susceptible to *F. circinatum,* whereas *P. elliottii* and *P. taeda* are moderately susceptible. Hybrids of *P. patula* with more resistant species also perform well.

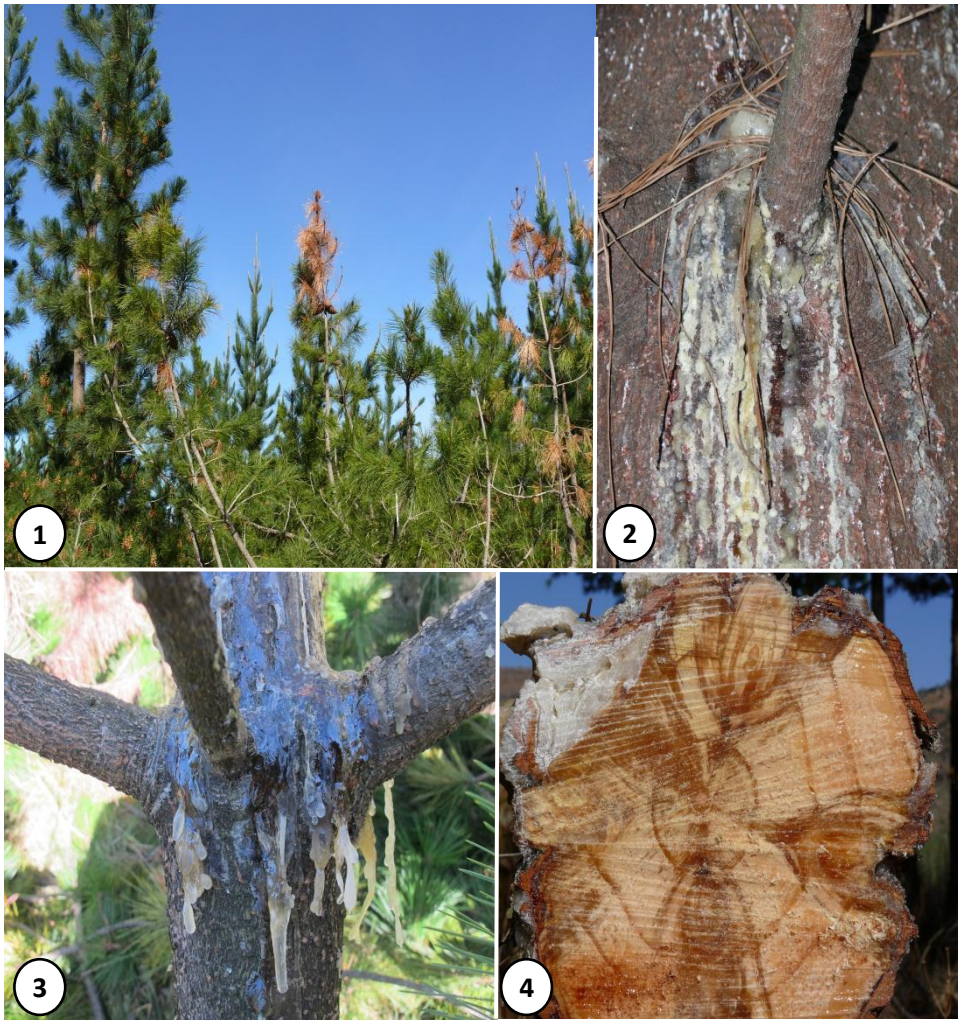
Geographic distribution: Americas, Spain, Italy, South Africa, Japan

Relative importance: Pitch canker is one of the most serious threats to commercial forestry in South Africa. It results in the death of trees.

Symptoms and signs: Resinous, slightly depressed cankers on the trunks and/or branches, and shoot die-back in the upper crown. Large amounts of pitch accumulate on and below the cankers. The wood beneath the cankers is deeply pitch soaked, often to the pith. *F. circinatum* is also capable of infecting cones, which tend to be deformed and smaller than normal.

Biology: *Fusarum circinatum* is an opportunistic pathogen and, therefore, relies on wounds for infection. These wounds could be as a result of insect damage, routine management practices or weather-related injuries. Conidia or spores of *F. circinatum* are air-borne. Maximum dispersal, however, occurs during precipitation and turbulent air. This fungus is also soil-borne and under optimal conditions, is able to survive in this medium for an extended period of time. The pathogen is able to survive in dead branches and wood chips for up to three years. Insects such as *Ips* spp., *Pityophthorus* spp., *Pissodes* sp. and *Conophthorus* spp. have been reported to be associated with the disease. One of the insects, *Pissodes nemorensis* (deodar weevil) is well established in South Africa and could become an important component of pitch canker in the country.

Management: Selection of disease tolerant genotypes, avoidance of wounds, especially during times conducive to infection. Ensure that only healthy plants are distributed to plantations.



(1) "Red-flagging" – dead branches as a result of branch girdling by *F. circinatum* infection, (2) resin exudation from a stem canker, (3) resin exudation, (4) internal pitch/resin accumulation and resin pocket of 10-year-old *P. greggii* tree.

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