PITCH CANKER

INTRODUCTION

Pitch canker is one of the most serious threats to commercial forestry in South Africa today. In the past seven years, *Fusarium subglutinans* f.sp. *pini* or FSP, the fungus that causes this disease, has been recorded for the first time in California and Japan. FSP was first recorded in South Africa in 1991, where it was found causing a root disease of *Pinus patula* seedlings in Mpumalanga. It has not, as yet, been detected on mature trees in commercial forests, although its appearance in such situations seems inevitable.

HOST RANGE

Studies in South Africa have shown that *P. patula* and *P. radiata* are highly susceptible to FSP, whereas *P. elliottii* was found to be moderately susceptible. This is of concern because these three species constitute 80% of pines grown in South Africa. In the USA *P. radiata* and *P. virginiana* have been found to be highly susceptible, *P. sylvestris*, *P. echinulata*, *P. patula*, *P. elliottii* and *P. rigida* moderately susceptible and *P. serotina* and *P. strobus* moderately resistant.

SYMPTOMS

FSP is capable of infecting both vegetative and reproductive structures of pines at any stage of their maturity. The characteristic symptoms on immature and mature trees are resinous, slightly depressed cankers on the trunk and/or large 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. This characteristic distinguishes pitch canker, from cankers resulting from other fungal

MANAGEMENT STRATEGIES

FSP 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. FSP is air-borne and maximum dispersal occurs during precipitation and turbulent air. This fungus is also soil-borne. Both methods of spore dispersal are effective and hinder successful control. 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. Methods of controlling pitch canker include the effective management of plantations, seed orchards and nurseries, and the selection of disease tolerant genotypes.

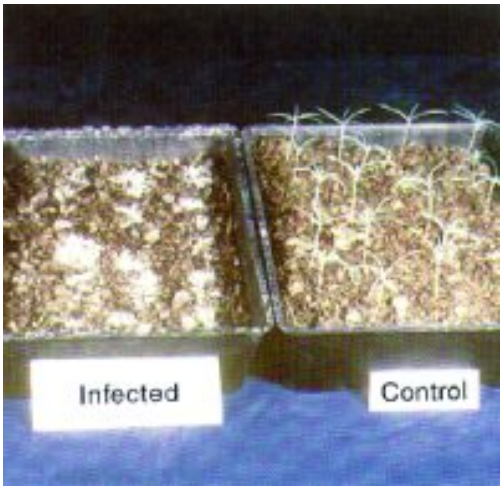
Pitch-soaked wood of infected stem (Photo: G. Blakeslee).

Pitch exuding from infected stem.

infections. FSP is also capable of infecting cones, which tend to be deformed and smaller than normal. As has been observed in South Africa, FSP is also capable of causing severe and extensive root disease of pine seedlings in nurseries.

Dead top associated with stem canker.

Branch infected with FSP exuding pitch.



Seedlings artificially inoculated with FSP (left) and control (right).

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