

DIPLODIA TIP BLIGHT OF 1-0 PONDEROSA PINE SEEDLINGS
AT THE USDA FOREST SERVICE NURSERY,
COEUR D'ALENE, IDAHO

by

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April 1985

Nursery Disease Notes No. 17

ABSTRACT

Mortality and tip dieback of 1-0 ponderosa pine seedlings at the USDA Forest Service Nursery in Coeur d'Alene, Idaho, during 1984 were caused by Sphaeropsis sapinea (=Diplodia pinea). Diseased seedlings were scattered throughout seedbeds but severity of the disease was insufficient to warrant control. The disease will be monitored during the second growing season to evaluate if severity increases the second year. Alternatives for control, should it be warranted, are discussed.

During the fall of 1984, mortality of 1-0 ponderosa pine (Pinus ponderosa Laws.) seedlings at the USDA Forest Service Nursery in Coeur d'Alene, Idaho was investigated. Affected seedlings were scattered throughout several seedbeds; certain portions of beds had concentrations of dead or dying seedlings. Disease symptoms varied from dieback of terminals to entire seedling mortality. Necrotic needles on diseased seedlings became brown or different shades of purple. At the base of necrotic needles, small black pycnidia were often evident. Pycnidia became more numerous and prominent when diseased seedlings were incubated in moist chambers for about 72 hours. Examination of pycnidia under the microscope (100-450 X) and isolation from necrotic tissues revealed that the major organism associated with the disease was Sphaeropsis sapinea Fr. Dyko & Sutton (=Diplodia pinea (Desm.) Kickx).

This pathogen has been encountered on bareroot pine seedlings at the nursery before; however, not at the levels found in 1984. Disease symptoms were almost identical to those caused by Sirococcus strobilinus Preuss and Phoma eupyrena Sacc., pathogens also previously associated with seedling tip dieback at the nursery (James 1985; James and Hamm 1985).

Occurrence of Diplodia blight in nurseries has been reported on several pine species (Crandall 1938; James 1984; Slagg and Wright 1943). Infection is usually associated with occurrence of adjacent large pine trees that serve as inoculum sources (Palmer and Nicholls 1983). The fungus often colonizes and sporulates on cone scales (Palmer 1984; Peterson 1981) and may cause branch dieback of large pine trees (Peterson 1981; Peterson and Wysong 1968). Occurrence of infected cones in nursery beds may indicate presence of inoculum. At Coeur d'Alene, infected seedlings were not adjacent to large pine trees, although such trees were in the vicinity.

Control of Diplodia blight in nurseries can be obtained by sanitation practices and timely use of fungicides. If levels of infection are low, diseased seedlings can be rogued and removed from the nursery, thereby reducing inoculum levels and chances for infection of other seedlings (Croghan 1982; Palmer and Nicholls 1983). If a source of large tree inoculum can be verified, these trees can either be removed or susceptible pine seedlings can be grown as far away from them as possible (Palmer 1984). If sanitation is not practical or does not adequately control the disease, fungicides can be used. Benomyl and Bordeaux mixture both have proven efficacy against Diplodia blight (Palmer and

Nicholls 1983; Peterson and Wysong 1968; Schweitzer and Sinclair 1976). For 1-0 seedlings, fungicides should be applied from June through August at about 14-day intervals. For 2-0 seedlings, fungicides need only be applied during and shortly after budbreak in the spring since this is the only period of seedling susceptibility. If adequate control of 1-0 stock is achieved, it may not be necessary to spray 2-0 seedlings, since there will usually be little inoculum available.

Occurrence of Diplodia blight at Coeur d'Alene is currently not severe enough to warrant direct control. Development of the disease during the second growing season in the absence of control will be monitored. This will include investigating disease spread and occurrence of new infections throughout the season.

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