TIP BLIGHT OF SCOTS PINE SEEDLINGS- MONTANA STATE NURSERY, MISSOULA

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Tip dieback symptoms occur frequently on bareroot pine seedlings at most nurseries in the northern Rocky Mountains. Symptomatic seedlings are usually scattered throughout seedbeds and damage is usually not extensive. Organisms often associated with dieback symptoms include *Sirococcus strobilinus* Preuss James 1986b; James 1985b) *Sphaeropsis sapinea* (Fr) Dyko & Sutton (=*Diplodia pinea* (Desm.) Kickx (James 1985a; James 1984), and species of *Phoma* (James 1982c; James 1987). These organisms are either soilborne or infect seedbeds from nearby conifer trees.

Tip blight of Scots pine (*Pinus sylvestris* L.) was recently discovered in 2-0 seedbeds at the Montana State Nursery in Missoula. Affected seedlings had necrotic tips which were sometimes bent over (figure 1). Affected tissues were placed in moist chambers after having been washed thoroughly under tap water. Fungi sporulating on necrotic tissues were identified.

Neither *S. strobilinus* nor *S. sapinea* were found on the blighted tissues examined. Rather, two species of *Fusarium* (*F. oxysporum* Schlect. and *F. acuminatum* Ell. & Ev.) were commonly found. Also, *Phoma pomorum* Thum. was frequently found sporulating on affected tissues. Other organisms found included common saprophytes such as *Alternaria* and *Trichoderma.*

A previous report from this nursery (James 1986a) indicated that *Fusarium* spp. are commonly found in non-fumigated soil. It is likely that soilborne fusaria were mostly responsible for the tip blight symptoms found on Scots pine seedlings. *Fusarium oxysporum* has been previously reported as frequently associated with pine tip blight symptoms at another nursery (James 1985b). Although *P. pomorum* has often been associated with seedling diseases, including tip blights (James 1987; James and Hamm 1985), its pathogenicity on conifer seedlings has not yet been demonstrated.

Recent changes at the Nursery have stressed soil treatment with fumigants to reduce damage by soilborne pathogenic organisms. Therefore, it is likely that if soil fumigation becomes operational, damage from tip blight as well as losses from damping-off and root diseases will be reduced.

Figure 1.--Scots pine seedling with tip blight symptoms at the Montana State Nursery, Missoula.

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