TIP BLIGHT OF BAREROOT PONDEROSA PINE AND BLUE SPRUCE SEEDLINGS AT THE MONTANA STATE NURSERY, MISSOULA

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During a recent visit to the Montana State Nursery in Missoula, bareroot 2-0 ponderosa pine (Pinus ponderosa Laws.) and blue spruce (Picea pungens Engelm.) were examined. Several individual seedlings of both species had tip necrosis symptoms (figures 1 and 2) which were mostly confined to the terminals. There was no evidence of insect activity on necrotic tips; the symptoms resembled tip dieback caused by pathogenic fungi (James 1984; James 1985).

Samples of symptomatic seedlings were taken to the laboratory for analysis. Necrotic tissues were placed in moist chambers to induce sporulation of associated fungi and isolations were made onto 2 percent water agar.

The most common associated fungi were species of Phoma and Alternaria. Sirococcus strobilinus Preuss and Sphaeropsis sapinea (Fr.) Dyko & Sutton (Diplodia pinea (Desm.) Kickx.), organisms commonly associated with tip dieback symptoms (James 1984; James 1985), were not found on necrotic tissues. However, several species of Phoma have previously been implicated in tip dieback diseases of bareroot conifer seedlings (James and Hamm 1986). Although often not as aggressive as either Sirococcus or Diplodia, Phoma spp. can cause damage to isolated seedlings, particularly in dense portions of seedbeds. Several of the seedlings examined were also colonized by Botrytis cinera Pers. ex Fr., which may also cause tip dieback symptoms (James 1986a).

Occurrence of tip blight was sporadic and scattered throughout examined seedbeds. Damage was not severe enough to warrant control measures. Species of Phoma are commonly soilborne (James and Hamm 1986) and may be eliminated by soil fumigation. Since root diseases were serious problems in nearby 1-0 seedbeds (James 1986b), soil fumigation should be seriously considered to reduce future disease incidence on both 1-0 and 2-0 stock. Although fumigation may be expensive, it will help provide for establishment and maintenance of adequately stocked bareroot seedlings.

<--- Figure 1.--Bareroot ponderosa pine seedling with tip blight symptoms.

Figure 2.--Bareroot blue spruce ---> seedling with tip blight symptoms.

LITERATURE CITED

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