

**PHOMA BLIGHT OF BAREROOT JAPANESE BLACK PINE SEEDLINGS  
FANTASY FARMS NURSERY, PECK, IDAHO**

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During a recent visit to the Fantasy Farms Nursery, Peck, Idaho, several Japanese black pine (*Pinus thunbergiana* Franco) seedlings displayed tip dieback symptoms (Fig. 1). Symptoms appeared as tip necrosis of needles and progressed into the main stem. Decay commonly occurred within stem lesions; several groups of primary needles were often necrotic. Close examination of necrotic needles indicated sporulation of fungi (black pycnidia) within zones of necrosis.

Several symptomatic seedlings were analyzed for associated organisms. Necrotic tissues were washed thoroughly under running tap water. Some were placed in petri dish moist chambers which stimulated sporulation of associated fungi; others were aseptically placed on potato dextrose agar (PDA) after having been surface sterilized in a 10 percent bleach (0.525 percent aqueous sodium hypochlorite) for 1 minute. All plates were incubated at about 24°C for 5 days under diurnal cycles of cool fluorescent light. Fungi sporulating on tissues within moist chambers and emerging from tissues incubated on PDA were identified to genus using a standard taxonomic guide (Barnett and Hunter 1972). Other taxonomic references were used for determination of species (Boerema 1976; Domsch and others 1980; Dorenbosch 1970).

Most necrotic tissues exhibited profuse sporulation of *Phoma*. Other fungi either isolated from tissues or sporulating on them included *Botrytis cinerea* Pers. ex Fr., *Alternaria*, *Penicillium*, and *Trichoderma*.

Previous experience at this nursery (James 1984b) has indicated that pine seedlings may be attacked by species of *Phoma*. These soil-borne fungi splash onto the surface of seedlings during rainfall or irrigation (James and Hamm 1985) to initiate infection. They most often cause a tip dieback which progresses down the main stem. At advanced stages, infected seedlings may be killed. Normally groups of seedlings are affected and those that are the smallest are usually most severely damaged (Kliejunas and others 1983).

Isolates of *Phoma* from black pine seedlings were identified as *P. eupyrena* Sacc. They produced olivaceous-black aerial mycelium and numerous catenulate chlamydospores on PDA. This species has been implicated in several conifer seedling diseases in the western United States (James 1983a, 1983b, 1984; James and Cooley 1987; James and Hamm 1985). It is not usually an aggressive pathogen; however, if environmental conditions are conducive and inoculum levels are high, this fungus can cause serious damage (James and Hamm 1985). Levels of *Phoma* in the soil are adequately controlled by fumigation with standard biocides such as methyl bromide/chloropicrin and dazomet (James 1989). They are also sensitive to several fungicides. At the Fantasy Farms Nursery, where soil fumigation is not practiced, symptomatic seedlings can be treated with chlorothalonil on schedules similar to those devised for Diplodia tip blight of ponderosa pine seedlings (James and others 1987; Kliejunas and others 1983).

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Figure 1. Bareroot Japanese black pine with tip dieback symptoms at the Fantasy Farms Nursery, Peck Idaho. Affected seedlings were scattered throughout seedbeds.