

### ***LOPHODERMMIUM* NEEDLE CAST**

The fungus disease known as *Lophodermium* needle cast continues to appear in Scotch pine plantings in Western Washington. This disease first became apparent in the coastal regions of Washington and Canada in 1969 and continues to increase in intensity. Numerous Christmas tree plantations and nurseries have reported problems this year from this disease.

Scotch pine (*Pinus sylvestris*), red pine (*Pinus resinosa*), and Monterey pine (*Pinus radiata*) are considered to be susceptible to the disease, although it will apparently attack all pine species. The short-needle varieties of Scotch pine are reported to be highly susceptible.

Dr. John Staley from the Rocky Mountain Forest and Range Experiment Station in Fort Collins, Colorado, in cooperation with several workers in the northwest, has carried out research during the last several years on this disease. Much of what we know about this disease and its unique character in the Northwest has been revealed by these studies. They have found that at least three *Lophodermia* can cause damage. One is responsible for attacking the first internode needles in the spring, the second causes a yellowing of the second internode needles in the fall, and a third causes a yellowing of the third and fourth internode needles in the fall.

Small pale spots appear on the needles as the first symptom of this disease. As these spots enlarge and spread, they become yellow and then reddish-brown. Gradually the entire needle will change color and die. Characteristic fruiting bodies of the fungus appear on these brown needles, sometimes being formed prior to the needles being cast or during the winter after the needles have fallen (Fig. 1). These black, football-shaped fruiting bodies are easily seen without the use of a hand lens or microscope. The longitudinal slit down their center permits spores to be released (Fig. 2). These spores are able to infect other needles and the cycle is repeated. In addition to these obvious, shiny, black, football-shaped fruiting bodies, smaller, brown or tan fruiting bodies can be formed. Spores from this stage of the fungus will not infect pine, and their exact role in the life cycle of the fungus has not yet been determined. Narrow black bands may appear on the dead, infected needles.

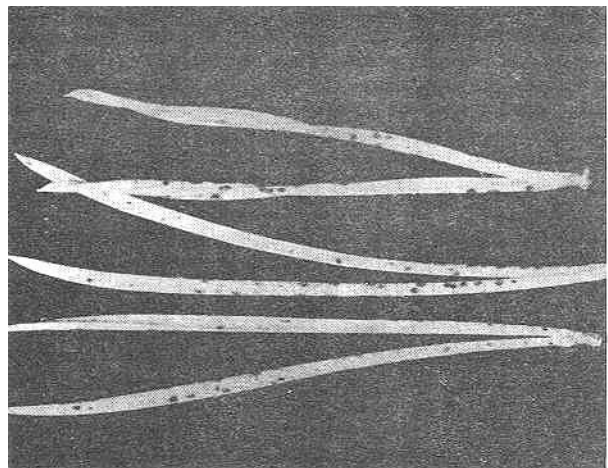


Figure 1. *Lophodermium* infected pine needles showing characteristic black fruiting bodies of the fungus.

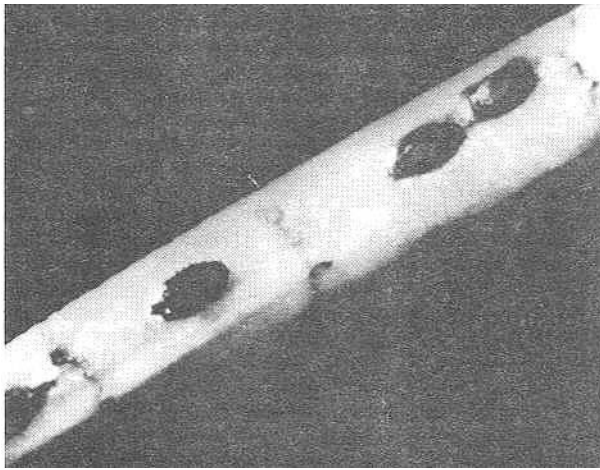


Figure 2. Close up of football-shaped fruiting bodies of *Lophodermium* on pine needles. Spores are released from the slit located in the center.

Because several *Lophodermia* can be involved in the development of this disease in the Northwest, successful control is more difficult than has been reported in other areas. Spore trapping has indicated the possibility of spores being present during the 12 months of the year. Spray trials have confirmed the necessity of year around fungicide applications to adequately control this disease. Daconil, Maneb, and Dithane M-45 (Manzate 200) are presently registered for use. Dithane M-45 (Manzate 200) has consistently given good control in trials in Western Washington.

Fungicide applications should be made monthly. During the rainy season, strict spray schedules can be difficult, if not impossible to keep. Therefore, attempts should be made to apply them in "dry period" following winter

storms. A spreader-sticker such as Bioflim (4 oz. per 100 gallons of water) should be used in combination with these fungicides. Be sure to follow all label directions and precautions.

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