Forest Disease Management Notes

United States
Department of
Agriculture

Forest Service
Pacific Northwest
Region

Swiss Needle Cast

Swiss needle cast is caused by the fungus *Phaeocryptopus gaumanni*. This disease is very common in western Oregon and Washington. Damage is seldom serious in forest stands, but is probably the most important disease in Christmas tree plantations.

Hosts: Douglas-fir.

Recognition: Yellowing and browning of infected previous year's needles in spring shortly after current needles emerge; loss of 1- and 2-year-old needles in summer; needle casting begins in the lower portion of tree crowns and progresses upward. Severely infected trees may have only current season's needles in the fall . Tiny black fruit bodies (perithecia) of the fungus appear in the stomatal openings on the underside of current year's needles as early as October and increase in numbers throughout the winter and spring; large numbers of fruit bodies cause the normally white stomatal rows to appear black.

Disease Spread: Perithecia mature in April and May on 1-year-old needles; spores released from them are windborne; spore release is dependent upon wetting of the fruit bodies; spore germination also requires ample moisture on current season's foliage. The disease is most noticeable following wet springs. Succulent foliage, dense stocking and moist conditions favor infection. There is considerable variation in susceptibility to infection between seed sources.

Management: Usually none is warranted in forest stands; disease normally causes growth loss, not mortality; may be controlled in Christmas tree plantations by one application of chlorothalonil, maneb, or benomyl applied in early June.

May be Confused With: Rhabdocline needle cast, root diseases.

Perithecia of *Phaeocryptopus gaumanni* on undersurface of Douglas-fir needeles

Defoliation caused by Swiss needlen cast