

Brown Spot Needle Blight of Pine

Bruce R. Fraedrich, PhD, Plant Pathology

Brown spot needle blight causes needle browning and defoliation of many pine species in North America. The disease is most common on longleaf, ponderosa, and Scots pine, but can affect most pine species growing in dense plantings with limited air movement and sunlight penetration. Small trees and lower branches on large trees are the most commonly affected. Young longleaf pine is particularly susceptible due to its unique growth habit (grass stage). Repeated defoliation can lead to branch death, decline in health and tree mortality.

Symptoms

Needles develop brown spots and banding, usually beginning on lower branches. Unlike many needlecast diseases, symptoms of needle blight appear on current season's growth. As the disease progresses, small black spots of fungal mycelium and spores develop on the lesions and are visible with a hand lens. Tips and bases of needles usually remain green while the middle portion

Figure 1: Lower branches exhibiting browning

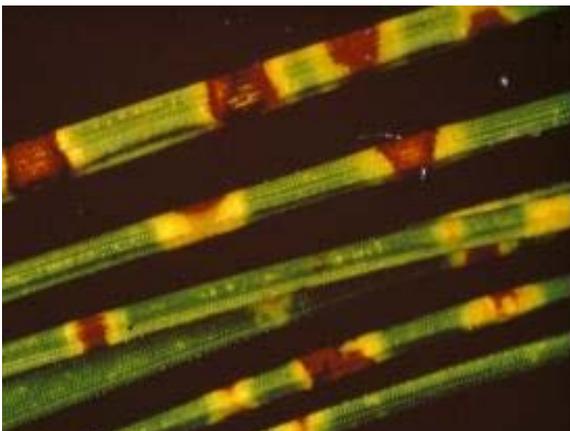


eventually turns completely brown. Spots or bands caused by this fungus normally have clearly defined margins (Figure 2). Symptoms of this disease are practically indistinguishable from *Dothistroma* needle blight and accurate diagnosis depends on microscopic examination of fungal spores from diseased tissue.

Biology

Brown spot needle blight is caused by the fungus *Lecanosticta acicola* (formerly *Mycosphaerella dearnessii*). The fungus overwinters on diseased needles both on the ground and those retained on the tree. Spores are spread by wind and rain-splash in spring through summer to produce new infections. Developing needles are most susceptible to infection following rain.

Figure 2: Banding on needle mid-sections



Management

Pines thrive in full sun and foliage diseases develop where shading and high humidity occur. Pines should be planted to allow adequate spacing between adjacent plants to provide airflow and sunlight penetration to the lower portions of the crown as trees grow. Pruning any overstory or adjacent plants to improve light and air penetration to lower foliage will help suppress disease development. On pines that are defoliated by brown spot needle blight, cultural practices including fertilization based on soil analysis,

proper mulching and irrigation during dry periods in the growing season will aid recovery.

Preventive fungicide applications to the newly developing foliage will suppress new infections. Apply treatments at 3-4 week intervals, beginning when new needles begin to emerge from the fascicle.



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