

Forest Pest Bulletin



SOUTH DAKOTA
DEPARTMENT OF AGRICULTURE
DIVISION OF RESOURCE
CONSERVATION & FORESTRY



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DOTHISTROMA NEEDLE BLIGHT

CAUSAL AGENT

The fungus *Dothistroma pini* Hulb.

HOSTS

Ponderosa pine (*Pinus ponderosa*) and Austrian pine (*P. nigra*) are highly susceptible although there is considerable variation among seed sources. Mugo pine (*P. mugo*) is occasionally infected. Scotch pine (*P. sylvestris*) is considered resistant to the disease. Approximately 20 other pine species are known to be susceptible; other conifers have been reported as occasional hosts.

SYMPTOMS

Symptoms for new infections first appear on the older needles in late summer or fall. Yellow and tan spots and water-soaked green bands appear on needles (Fig. 1). The bands and ends of infected needles progressively turn red often with bordered yellow stripe. The tips of the needles usually turn brown while the base of the needles remain green (Fig. 2). There is usually an abrupt transition between colors on the needles.

However, the entire needles may start browning several weeks after the first appearance of symptoms. The needles eventually turn a gray-brown, often bending at a sharp angle and may soon be shed or persist for a season. Infection is typically most severe in the interior and lower portion of the tree. Infected needles drop prematurely after turning gray-brown. Infected second-year needles usually drop in the fall, but first-year needles usually drop the following spring or summer.

The symptoms of dothistroma needle blight closely resemble those that occur from winter injury and diplodia (*Sphaeropsis*) tip blight. Winter injury on pine



Figure 1. Banding of dothistroma infected needles.

Funk, A.; Parker, A. K. *Scirrhia pini* n. sp., the perfect state of *Dothistroma pini* Hulbary. Can. J. Bot. 44:1171-1176; 1966.

needles usually turns the tips of the needles reddish-brown, or sometimes the entire needle, but there are not transversal bands of red and yellow. Diplodia also does not typically produce banding and the affected shoots often have excessive resin flow.

LIFE CYCLE

The fungus over-winters in infected needles on the tree, not fallen needles. Spores begin developing in April and May and are released from May through October. They are primarily dispersed by rain splash. With favorable conditions, persistent precipitation, spores germinate on needles and grow germ tubes that enter the needles. Incubation (time between first infection and first symptom appearance) is approximately 4 months.

CONTROL

Copper fungicides or mancozeb should be applied as new growth expands (mid-May) and repeated in mid-June. The first application protects needles from previous seasons; the second application protects current-year needles. When control is intended for plantings of Austrian or ponderosa pines, the second application can be made after considerable new growth has occurred because current-year needles of these species initially resist infection and do not become susceptible until midsummer (July).

Annual spraying may not be necessary in park, residential, and similar types of plantings.

Due to numerous pesticide labels and/or label changes, be sure the product label includes the intended use prior to purchase or use. Please read and follow all pesticide label instructions and wear the protective equipment required. Spraying pesticides overhead increases the risk of exposure to the applicator and increases the likelihood of drift to non-target areas. Consider the use of a commercial applicator when spraying large trees due to the added risk of exposure and equipment needs. The mention of a specific product name does not constitute endorsement of that product by the South Dakota Department of Agriculture.

For further information contact your nearest South Dakota Division of Resource Conservation and Forestry office. Hot Springs 605-745-5820; Huron 605-353-7187; Lead 605-584-2300; Mitchell 605-995-8189; Pierre 605-773-3623; Rapid City 605-394-2395; Sioux Falls 605-362-2830; Watertown 605-882-5367.

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Figure 2. Infected needles.
Robert L. Anderson, USDA Forest Service, www.forestryimages.org