

# Forest Pest Bulletin



DEPARTMENT OF AGRICULTURE  
AND NATURAL RESOURCES  
DIVISION OF RESOURCE  
CONSERVATION & FORESTRY

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## DOTHISTROMA NEEDLE BLIGHT

### CAUSAL AGENT

*Dothistroma pini*

### HOSTS

Ponderosa pine (*Pinus ponderosa*) and Austrian pine (*Pinus nigra*) are highly susceptible although there is considerable variation among seed sources. Mugo pine (*Pinus mugo*) is occasionally infected. Scotch pine (*Pinus 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* tip blight (*Sphaeropsis*). Winter injury on pine 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



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.

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. Rain splash primarily disperses the spores. 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.

### MANAGEMENT

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. 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). A third spray may be performed in July during wet summers. Spraying should be done for two or three years and then repeat the treatments in another three years as infection builds.

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 and Natural Resources.

For further information contact your nearest South Dakota Division of Resource Conservation and Forestry office. Hot Springs 605-745-5820; 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.  
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