



Dothistroma Needle Blight of Pine

Jennifer Olson

Assistant Extension Specialist/Plant Disease Diagnostician

Dothistroma needle blight is a serious disease of pine trees in Oklahoma that causes premature needle drop. The disease affects both landscape plantings and pines in windbreaks. Austrian (*Pinus nigra*) and ponderosa (*P. ponderosa*) pines are highly susceptible while Scots or Scotch (*P. sylvestris*) pine is resistant to this disease. When Dothistroma needle blight is left uncontrolled, trees may be weakened and eventually killed.

Symptoms

Although needles are infected in the spring, the symptoms do not develop until the fall. Early symptoms consist of yellow and tan spots that may be bordered by a water-soaked band (Figure 1). As the spots enlarge, the tips of the needles will die while the needle bases remain green (Figure 2). The dead portion of the needle may break off leaving a blunted tip. Needles are often prematurely shed or cast from the tree, especially needles on lower branches since the humidity is greater in the lower canopy (Figure 3). Winter desiccation injury causes symptoms similar to Dothistroma needle blight. However, needles damaged by winter desiccation will show browning of tips to roughly the same point on the needle. The amount of tip browning caused by Dothistroma needle blight is variable (Figure 4).

Disease Cycle

Dothistroma pini is the non-sexual stage of the fungus and is the only stage found in Oklahoma. Conidia (spores)

Oklahoma Cooperative Extension Fact Sheets
are also available on our website at:
<http://osufacts.okstate.edu>

are produced in fruiting structures within the spots or bands on the needles. By January, these fruiting structures become visible as small, erumpent black dots along the blighted needles (Figure 5). Fruiting structures mature in mid to late spring and conidia are spread by rain splash through the growing season (May to October). Although infections occur throughout the growing season, symptoms do not become evident until fall. Two seasons are required for the pathogen to complete its lifecycle.

Management

Fallen needles should be removed from the ground and discarded in the trash to reduce inoculum (pathogen propagules) and thereby lower disease severity the next season. Sanitation is not completely effective since some needles may remain attached to branches. Fungicides can be applied for preventative control of Dothistroma needle blight. Newly developed needles are resistant, but become susceptible by mid-summer. Older needles are susceptible throughout the growing season. A copper containing fungicide can be applied once the new needles have almost fully expanded (usually mid-May). A second application seven to ten days later may be helpful especially if weather is cool or rainy. Thorough coverage is essential and hiring a tree care professional to treat large trees is advised. If the disease is severe, several years of meticulous treatment may be required to control Dothistroma needle blight.



Figure 1. In the fall, early symptoms of Dothistroma needle blight appear as spots or bands on the needles that may have a water-soaked edge.

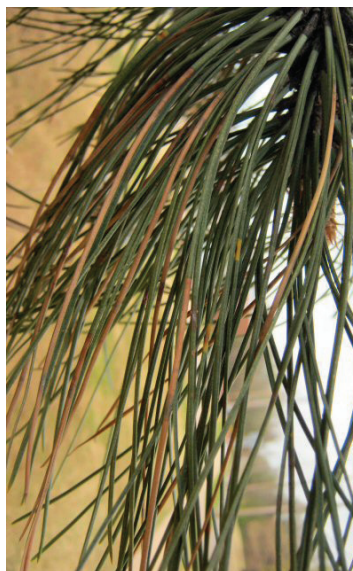


Figure 4. The browning of needle tips killed by Dothistroma is variable. Some needles are killed nearly to the base while others are less affected or unaffected.



Figure 2. As the symptoms of Dothistroma needle blight progress, the tips of the needles may turn reddish brown while the needle bases remain green.



Figure 5. By January, erumpent, black fruiting structures develop on blighted needles.



Figure 3. Premature defoliation (especially of lower needles) often occurs with Dothistroma needle blight.

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, gender, age, religion, disability, or status as a veteran in any of its policies, practices, or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 20 cents per copy. 0312