College of Agriculture, Food and Environment
Cooperative Extension Service

Plant Pathology Fact Sheet **PPFS-OR-W-25**

Dothistroma Needle Blight of Pine

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Introduction

Dothistroma needle blight disease afflicts some of the pine species commonly planted in Kentucky landscapes, resulting in needle browning and unattractive trees (Figure 1). Austrian pine (*Pinus nigra*) and Mugo pine (*P. mugo*) are most commonly affected. Dothistroma needle blight is infrequently observed on spruce (*Picea* spp.). A closely related fungal disease called brown spot needle blight occasionally affects Scots pine (*P. sylvestris*) or white pine (*P. strobus*), although this disease is less common in Kentucky.

Symptoms

Needle blight symptoms begin as dark green spots on infected needles as soon as 1 month after infection. This earliest symptom is often overlooked. Later, distinctive brown or reddish spots are visible on needles, sometimes encircling needles to form bands of discolored tissue (Figure 2). These needle-banding symptoms are usually not noticeable until autumn or winter, or even early the following spring. Black pimple-like fungal fruiting bodies may be visible as needle tissue becomes necrotic (Figures 3A & 3B). Blighted needles can either remain on trees or may drop prematurely. Needle browning tends to develop on lower branches and progress upward (Figure 1). Symptoms on spruce are similar to those on pine (Figures 4A & 4B).

Figure 1. Dothistroma needle cast symptoms begin on lower branches and progress upward.

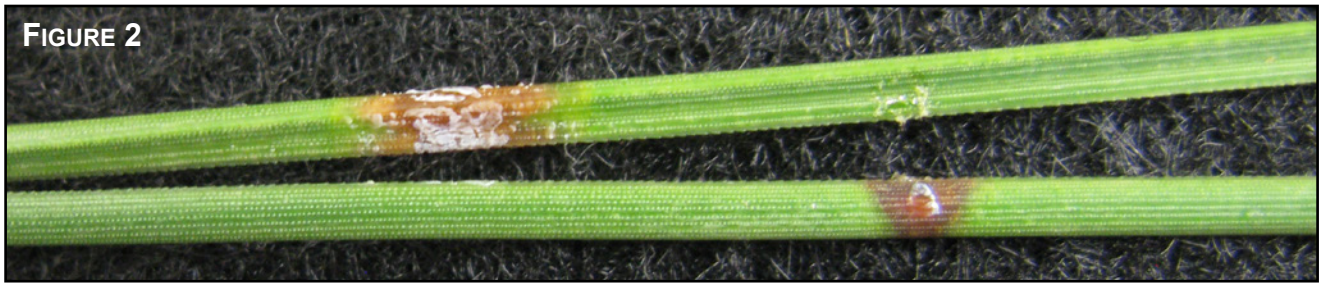

FIGURE 2. NEEDLE BANDING SYMPTOMS BECOME OBVIOUS SEVERAL MONTHS AFTER INFECTION.

FIGURE 3A & B. WHEN DARK FUNGAL FRUITING BODIES ARE MATURE, THEY BEGIN TO ERUPT THROUGH NEEDLE TISSUES. THESE STRUCTURES CONTAIN SPORES THAT INITIATE NEW INFECTIONS.

FIGURES 4A & B. BANDING FROM DOTHISTROMA NEEDLE BLIGHT ON SPRUCE IS SIMILAR TO BANDING ON PINE NEEDLES.

Cause & Disease Development

Dothistroma needle blight disease is caused by the fungus *Mycosphaerella pini* (formerly known as *Dothistroma septosporum*). The fungus survives in fallen needles or in infected needles retained in the tree canopy. In spring, especially during wet conditions, fungal spores splash into the lower tree canopy. Older needles may become infected as soon as spores are disseminated in spring, while new needles are infected after they have matured slightly. In Kentucky, infections are thought to begin in April or May and continue through summer if conditions remain wet.

Disease Management

To manage needle diseases:

- Promote air circulation by using adequate tree spacing and by pruning lower branches.
- Practice sanitation; clean up debris and dropped needles as much as possible.
- Avoid wetting pine foliage if using overhead (sprinkler) irrigation to water lawn or nearby plantings.
- Apply protectant fungicides in spring as new shoots begin to expand (typically mid-April) and again 3 to 4 weeks later. Applications made after mid-June are not effective. Contact a local county Extension office for specific fungicide recommendations.

Additional Resources

- Plant Pathology Extension publications - Woody Ornamentals
http://plantpathology.ca.uky.edu/extension/publications#WOODYORNAMENTALS
- Common Diseases of Spruce in Kentucky (PPFS-OR-W-24)
http://plantpathology.ca.uky.edu/files/ppfs-or-w-24.pdf
- Homeowner's Guide to Fungicides (PPFS-GEN-07)
http://plantpathology.ca.uky.edu/files/ppfs-gen-07.pdf
- Landscape Sanitation (PPFS-GEN-04)
http://plantpathology.ca.uky.edu/files/ppfs-gen-04.pdf
- Woody Plant Disease Management Guide for Nurseries and Landscapes (ID-88)
http://www.ca.uky.edu/agc/pubs/id/id88/id88.pdf

July 2017

Acknowledgement

The authors thank Paul Vincelli for his review of this publication

Photos: Sandy Kleinhenz, Oldham County (1); Julie Beale (2, 3a, 3b, 4b) and Paul Bachi (4a), University of Kentucky
Editor: Cheryl Kaiser, Extension Staff Support