# Dothistroma Needle Blight

Morgan Goodnight and Peng Tian,

Plant Diagnostic Clinic

The MU Plant Diagnostic Clinic staff found a pine tree with needle blight and dieback problems. After examination of the symptomatic needles, we confirmed the presence of Dothistroma Needle Blight, which is a fungal foliage disease infecting pine needles and can even kill the tree in extreme cases. While this disease effects many varieties of pine trees throughout the Midwest, its primary host in Missouri is Austrian Pine.


**Figure 1. Needle blight of pine** Photo: Morgan Goodnight

**Name:** *Mycosphaerella pini*

**Symptoms and Signs:** This disease overwinters in the infected needles and disperses during the wet season of the early spring to fall. The first symptoms are the formation of dark spots or bands on the needles (Figure 1). Then, the needle dies back starting at the tip. As it progresses, the whole needle turns brown, dies and falls off the tree. Once the spores are mature, they emerge from the black fruiting bodies in the spots or bands on the needles can be spread by rain or wind. The black fruit bodies are called stromata or pycnidia. They normally appear in the fall when the disease become prominent, but spores aren't released until the next spring.

**Life cycle**: The fungus overwinters on needles and stems of young trees that were infected in the previous year. Moderate temperature (60 ° to 82° F) and high humidity favors disease development.

Spores are dispersed by rain splash, the wind, insects, or during pruning. The spores can re-infect the newly developed plant tissues through the year.

**Host range and damage**: This disease can affect many conifers such as pines, spruces, and firs across North America. It causes needle blight and twig dieback, reducing the vigor of the tree by weakening their health. The damage is typically not serious as they are mostly cosmetic. However, depending how long it has affected the tree as well how stressed the trees is, heavy infestations can result in branch diebak and the death of the entire tree.

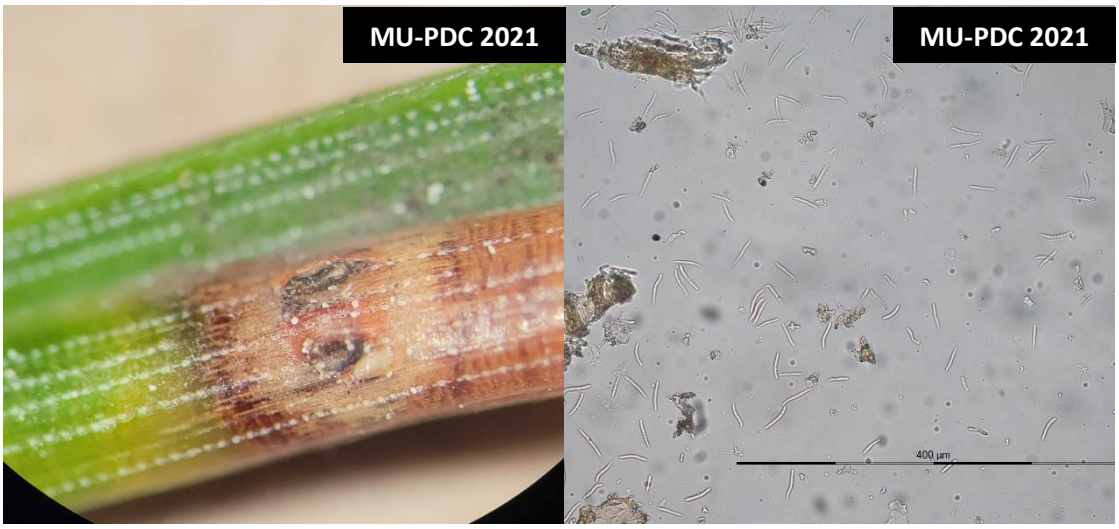


**Figure 2. Pycnidia and conidia of *Mycosphaerella pini*** Photo: Peng Tian

**Disease Management:**

1. **Wait the disease out.** This disease is slow to spread, so gauge how bad the damage is in one season to determine if you need to spray the next season**.**
2. **Be aware of where sprinklers are aimed.** Make sure the sprinklers aren't directed towards the tree needles.
3. **Control the weed by mulching under the tree.** Good weed control can reduce the competition from other hosts.
4. **Apply a copper or mancozeb based fungicide.** Two applications may be needed. One in the spring to protect the current growth and another in June or July to protect that season's new growth.
5. **Your local gardener may know of pine trees that are more resistant to Dothistroma Needle Blight.** You can also choose to plant less susceptible evergreens.

**References:**

1. **Dothistroma Needle Blight**, University of Nebraska-Lincoln Backyard Farmer, (https://byf.unl.edu/dothistroma-needle-blight)
2. **Dothistroma Blight of Pines,** Missouri Botanical Garden (https://www.missouribotanicalgarden.org/gardens-gardening/your-garden/help-for-the-home-gardener/advice-tips-resources/pests-and-problems/diseases/needlecasts/dothistroma-blight.aspx)

3. **Dothistroma needle blight,** Rebecca Koetter and Michelle Grabowski, University of Minnesota Extension https://extension.umn.edu/plant-diseases/dothistroma-needle-blight)
4. **Managing Dothistroma and brown needle blight on pines,** Jill O'Donnell, Michigan State University Extension, and Jan Byrne, MSU Diagnostic Services, Department of Plant, Soil and Microbial Sciences, Michigan State University (https://www.canr.msu.edu/news/managing_dothistroma_and_brown_needle_blight_on_pines )

For appropriate diagnosis, the MU Plant Diagnostic Clinic can help you confirm if your plant has this disease. We encourage you to visit our website (https://extension.missouri.edu/programs/plant-diagnostic-clinic) and review submission guidelines before submitting your sample. If possible, you may take photos and send them to plantclinic@missouri.edu.

We just uploaded a new webinar about sample submission guidelines on YouTube to help you submit your sample step by step. Please click here: https://www.youtube.com/watch?v=4dUcYKKFwaI

For sample submission and fee payment, you can either:

1) Visit our new online submission system at https://extension.missouri.edu/services/plant-disease-sample. Fill out the submission form online using your computer or mobile device and make payment online securely with a credit card.

2) Download the submission form at https://extension.missouri.edu/programs/plant-diagnostic-clinic/sample-submission. Fill it out and send to us together with your sample and payment. Check or money order. No cash please.

Contact information:
University of Missouri–Plant Diagnostic Clinic
28 Mumford Hall
Columbia, MO 65211
Phone: 573-882-3019
Email: plantclinic@missouri.edu