



Sphaeropsis Tip Blight of Pines

Pine trees may be severely damaged by a fungus disease known as Sphaeropsis tip blight (formerly known as Diplodia tip blight). In Indiana, Sphaeropsis tip blight most frequently affects Austrian pines (*Pinus nigra*), but can also damage Scots pine (*P. sylvestris*), ponderosa pine (*P. ponderosa*) and mugo pine (*P. mugo*). The disease occurs most often in well-established plantings; trees 25 to 30 years old are especially hard-hit. Trees suffering from chronic drought stress and other stress disorders are more prone to severe injury.

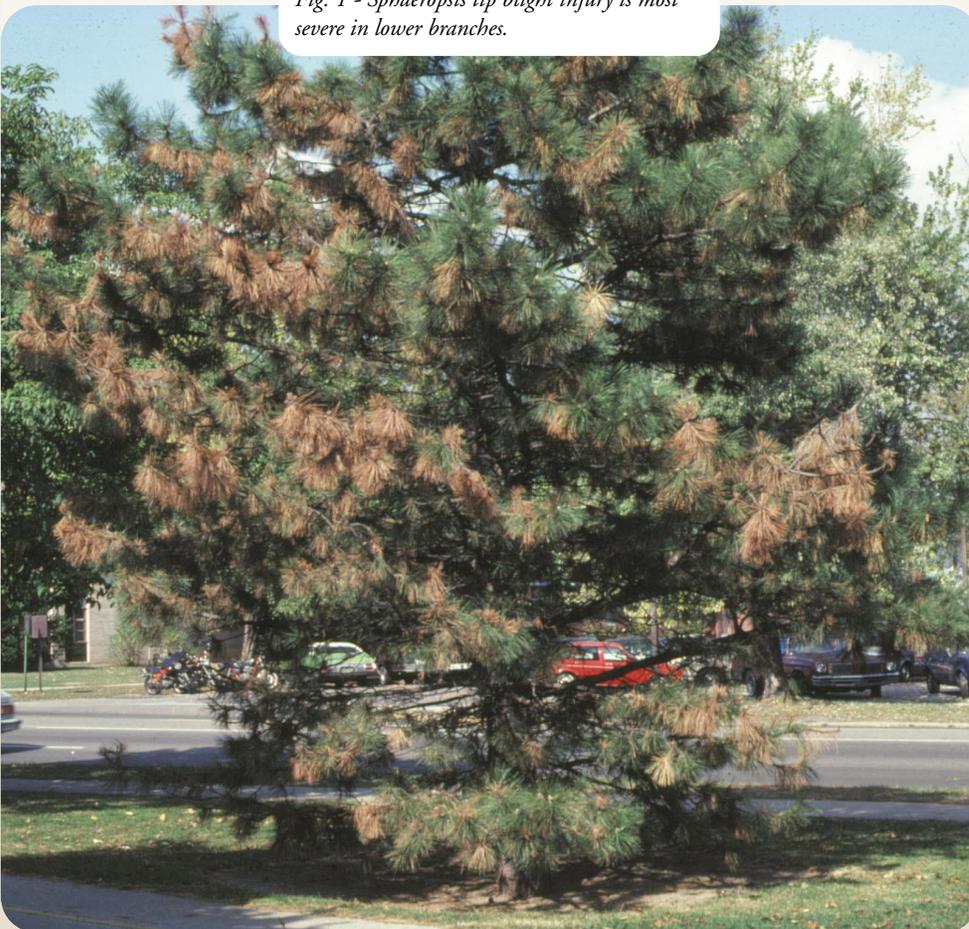
Symptoms

The most common symptoms are stunting and browning of current-year shoots in the lower branches. The killing back of the current season's growth, year-after-year, eventually results in dead limbs and stunted tree growth. Initially, the disease is confined to the lower branches. However, with time, the disease progresses upward until only the very upper branches are green, while the middle and lower portion of the tree is brown with brittle, dead branches. Symptoms on new

shoots can often be detected by early May; but the full extent of infection can not effectively be determined until late June or July.

Small, raised, black spore-producing bodies of the fungus break through the surface of killed needles, cone scales, and the bark of twigs or branches. It is often necessary, however, to pull the needles out of the needle sheath to observe these spore-producing bodies on the bottom portion of the needle. Stunted, straw-colored-to-gray needles are most likely to show signs of the fungus. The fungus also infects pinecones. The dark spore-producing bodies are also frequently abundant on the underside of the cone scales of second-year cones.

Fig. 1 - *Sphaeropsis* tip blight injury is most severe in lower branches.



Cause

Sphaeropsis tip blight is caused by the fungus *Sphaeropsis sapinea*. During moist weather in spring, spores ooze from black spore-producing bodies on dead tissue. Wind and rain carry the spores to young needles and buds. The fungus enters and kills the tissue. Within a year, the fungus produces more spores.

The fungus infects current-season needles and developing shoots from late April to mid-June.

“Drought conditions are a major contributing factor to Sphaeropsis tip blight.”

Fig. 2 - Terminal ends show brown, dead, stunted needles.



Remedies for Sphaeropsis Tip Blight

Stress conditions predispose trees to infection; therefore, do all you can to maintain good plant vigor. Be especially diligent to water during prolonged drought periods or on dry sites. Soil compaction, grade changes, poor water drainage, and restricted growing sites are common urban root stress factors that should be avoided. Remove dead or dying branches from infected trees whenever possible. However, sanitation by itself will not significantly reduce tip blight since so much of

the fungus remains within the tree canopy. Avoid pruning trees during spring and early summer, as the fungus can also infect wounded tissue. Also, do not plant susceptible pines near infected trees.

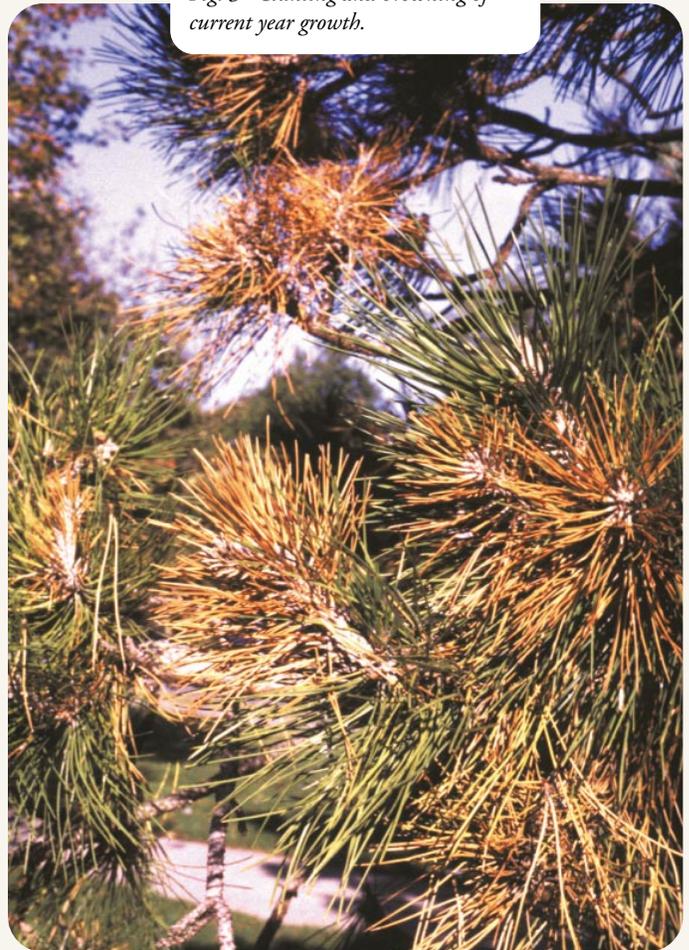
It is critical that the new, expanding shoots be protected from infection in early spring.

Fungicides should be applied at bud break, when candles are

half grown, and again when candles are almost expanded.

Fungicides effective in controlling Sphaeropsis tip blight include: chlorothalonil (sold as Daconil 2787, Fung-onil., etc.); thiophanate-methyl (sold as Halt, Cleary's 3336, etc.); and propiconazole (Banner MAXX). Not all of these chemicals will be readily available to homeowners; some are primarily for use by commercial nursery growers and landscape professionals. Before buying or applying any pesticide, check the label to make sure the plant type is listed. Fungicides vary in their formulation and percent active ingredient. Follow all label directions regarding amounts of pesticide to use, methods of application and safety warnings.

Fig. 3 - Stunting and browning of current year growth.



New growth is most susceptible in early spring starting when buds begin to open. Wet conditions are needed for infection. If dry weather prevails at the time new growth is most susceptible, infection levels are very low.

Second-year seed cones are initially infected in late May. Numerous spore-producing bodies develop on infected cones; thus, the increased damage to older trees is likely related to this fungus buildup. Infected seed cones are often observed on otherwise healthy pines, which indicates that the fungus builds up on seed cones of older pines before new shoots are extensively infected.

The first and most important step before managing a tree disease is to accurately diagnose the problem. With an inaccurate diagnosis, more harm than good could be done, not to mention the wasting of both time and money.

This publication is just one of several available online from Purdue Extension that addresses diseases found on landscape trees in Indiana. If your tree does not have symptoms similar to those described in this publication, please check the others.

Also, for more detailed photographs of disease symptoms, consider purchasing *Common Tree Diseases of Indiana (BP-63)*. It presents information about the six most common tree diseases seen in Indiana. It is available from the Purdue Extension Media Distribution Center. The publication is \$5 and can be ordered by calling 1-888-EXT-INFO.

If you are still in doubt as to the cause of the problem, consult a professional such as the Extension Educators at your local Purdue University Cooperative Extension Service office or Purdue University's Plant Pest and Diagnostic Laboratory (P&PDL).

To submit a plant sample to the P&PDL for diagnosis, obtain a sample submission form from your local Purdue Extension office, from the P&PDL office (1-888-EXT-INFO), or from the P&PDL Web page www.ppdل.purdue.edu/. Detailed instructions for submitting most types of samples are included on the back of the forms.

Submit a sample that is representative of the problem and shows the varying degrees of symptoms. Send several branches (even large ones) showing the symptoms and a detailed description of the problem and other useful information about the site, the age of the tree or shrub, and the date of planting. Photographs are very helpful.

Send the sample and submission form by first-class or overnight mail early in the week to:

Plant & Pest Diagnostic Laboratory
Purdue University
1155 LSPS
West Lafayette, IN 47907-1155

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