



Diplodia Tip Blight of Austrian, Red and Scotch Pine

Susceptible Pines

This disease is most commonly seen on Austrian pine and some of the other two and three needle pines such as red pine, Mugho pine and Scots pine. It is found more uncommonly on white pine, spruces and other evergreens. The fungus commonly attacks mature trees that have been under stress from drought, root restriction or other planting site problems. It can also be a problem in young, rapidly growing nursery or Christmas tree plantings.

Symptoms

The pathogen infects and kills current year's shoots. When the infected, current season's needles are $\frac{1}{2}$ to $\frac{3}{4}$ expanded, they turn yellow, then brown as they die on individual branch tips. A close look at the bases of the dead needles may reveal tiny black, fungal fruiting bodies emerging from the needle surface. Repeated infection over several years causes the ends of affected branches to have a proliferation of shoots. If left unchecked the disease can eventually kill mature trees. Girdling cankers can be formed if the pathogen infects wounds on the stem.

Other problems can cause similar dieback and tree decline. Winter drying; drought; injury from weevils, pine-shoot moths or tip moths; and some needle cast diseases caused by other fungi may cause damage similar to tip blight.



This Scots pine shoot has been killed following infection by the tip blight pathogen.



Tip blight on Austrian Pine.



The lower left portion of this pine is diseased with tip blight. It often begins on lower branches.

Causal Fungus and Disease Development

Tip blight is caused by the fungus, *Sphaeropsis sapinea*, once known as *Diplodia pinea*. Spores of the fungus develop in the black fruiting bodies located at the base of infected needles and other affected plant parts from spring through fall. They are spread about only during periods of rainfall. Pine shoots are particularly susceptible to infection in early spring. Developing cone scales are also commonly infected, although they are not damaged. Wounds, such as those made by hail, shearing, or insects (weevil or spittlebug feeding) also serve as entry points for the fungus. The fungus survives over winter in the infected shoots, bark, cones or needle litter beneath the tree.

Control

1. Trees should be kept in good vigor with regular maintenance, deep watering during droughts, fertilizing, control of insects and vertical mulching to open up the soil in the root zone. Vertical mulching can be done to improve landscape soils. Vertical mulching will lessen damage due to excessive water, preserve necessary aeration during wet periods, allow sub-soil water penetration during dry periods, and promote the formation of fine feeder roots. Drill one or two inch wide, 18" deep holes in the soil on 12-20" centers under infected trees near the drip line of the branches (where fine feeder roots are located). Fill holes with a mixture of equal parts of peat and a coarse aggregate such as pumice or calcined clay particles.

2. Remove previously blighted shoots. Since many spores are produced on cones, removal of previously blighted shoots probably does not decrease spore numbers appreciably. However, it does serve to make the tree look better and may increase its vigor.

3. Do not shear or prune infected trees during wet weather because spores released at this time may be carried from tree to tree on pruning tools.



Finding the tip blight fungal fruiting bodies at the base of dead needles confirms its presence.



Fungal fruiting bodies on pine cones.



Close-up of pine needles with tip blight.

4. This disease can be partially controlled with fungicides. Attention must be given to protecting the new spring growth of the trees from bud swell to full candle elongation. Make first application just prior to bud break and make two

or more additional applications at 10-day intervals. It is important to get the first application on the trees before any bud sheaths have broken. If bud sheaths have broken, spraying with fungicides is a waste of time and money.

Information obtained through the Ohio State Extension Factsheet HYG-3041-96



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