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Diplodia Tip Blight

Diplodia tip blight is a fungal disease of Austrian, Scots, mugo, red, and other two needled pines. The disease does not usually kill the tree, but results in brown shoot tips that many people find unattractive. When large numbers of shoot tips are affected over several years, entire branches may die.

Shoot tips that have already been infected by the Diplodia fungus cannot be cured. New shoot tips that form each spring can be protected with fungicides. The fungicides must be applied prior to fungal attack.

Trees in stressful situations may be more seriously affected. Also, individual trees vary in their susceptibility to the disease.

Life Cycles

The Diplodia fungus overwinters on infected needles, cone scales, or the bark of infected twigs. Spores are released from the overwintering lesions from spring through late autumn. Splashing rain or irrigation water are the primary means of moving the spores about. Spread of the disease is therefore more likely during rainy spring weather or where trees are watered through overhead irrigation.

New shoots are infected during the spring from the time of bud break to the point where the shoots have stopped growing for the season (usually a period of 6 to 8 weeks). The cones are infected during the spring of their second

season of growth (2 years are required for pine cones to mature). Spores are continually released during the summer, but once the new shoots have completed their development, they are no longer susceptible to infection. Most of the spores are released from infected cones.

Symptoms

The first noticeable symptoms include yellowing and stunting on the tips of the lowermost branches of infected trees. These symptoms are most noticeable from mid-summer into autumn. Because the pathogen usually builds up on the cones before spreading to infect the shoot tips, trees of non-cone bearing age are often relatively symptom free. Once a tree reaches cone bearing size (about 10-15 feet), symptoms of Diplodia are much more likely to appear. Because the disease tends to overwinter and spread from diseased cones, the lower branches are most likely to be affected. The lower branches are closer to the diseased old cones that have fallen to the ground and lay beneath the trees.

Management

Trees that have been diseased for several successive years may have large numbers of dead branches in the lower portions of their canopies. A similar situation may exist with trees that are in stressed situations because of drought, excess water, soil compaction, etc. Repeated or severe infestations can lead to twig cankers that can result in death of entire branches.



Left and Center: Yellowing and stunting occurs on lower branches; Center: diplodia spreads from diseased cones that fall to the forest floor; Right: entire branches can die.

Left to right photo credit: Susan K. Hagle, Steven Katovich, Joseph O'Brien; USDA Forest Service, Bugwood.org

Because stressed trees will be harmed more severely than non-stressed trees, be sure to provide the best environmental conditions possible. Proper water management, mulching, SoilCareSM, and pest management are necessary. By ensuring the best conditions possible, the threat posed by Diplodia will be lessened. Avoid frequent overhead irrigation cycles during shoot elongation to reduce spore spread.

Where tip blight is already established, several options are available. Severely infested trees (those with large numbers of dead branches or branch tips) should probably be removed. Individual trees vary in their susceptibility to tip blight. In some cases, it will be more cost effective to remove trees rather than trying to manage the disease.

Infected tips can be pruned, but this will do little to reduce the spread of the disease. Because the cones are the source of most of the spores, removing the tips will have little effect upon the disease level. Pruning can improve the trees' appearance by removing unsightly tissue, but blighted tips will likely reappear in future years if nothing further is done and weather conditions favor disease development. Branches dying from cankers should also be removed.

Removing diseased cones from the ground is practical only where few trees are present. Conifers can produce large numbers of cones and the labor required to remove them from large plantings will be considerable. Many cones do not drop from the tree, but still serve as a spore source.

Fungicide treatments are available for trees of susceptible age that are at risk. The treatments must be applied as a preventative during the spring of the year. They are timed

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to protect the newly emerging candles from infection. At least three applications are recommended. They should be applied from bud break to full candle expansion. Application of fungicides after these periods will have little effect. Tip blight is best prevented; it is more difficult to manage after it has become firmly established.

If you have any additional questions or concerns, please do not hesitate to contact your local office for further details.



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