

Needle Cast Blue Spruce

Dr. Green Thumb
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By: Stephen Vann

Diagnosis

This disease of ornamental spruce is caused by the fungus *Rhizosphaera kalkhoffii*. The needle cast disease infects primarily blue spruce where it occurs in the northern portions of Arkansas. The needle cast disease may also affect black spruce. This tree is often used in the ornamental landscape and as a Christmas tree in some areas of the state. The disease can be an especially serious problem in areas of frequent rainfall and high humidity. The disease organism may be brought into an area on infected needles and branches that are used for decorations during the holiday season. Infections usually take place during the spring when weather conditions are conducive for disease development. Stressed plants tend to develop more disease problems. The first symptoms become evident during the second spring. Splashing water is the major method by which the spores of this fungus are spread from plant to plant.

Symptoms

Needle cast epidemics may develop under wet and humid conditions. Premature defoliation results from fungal invasion of the needle leaves. In most cases, symptoms develop in the lower interior branches. As infection advances, symptoms progress up the tree. Infected needle leaves may turn yellow in mid- summer and then purple in late September. Leaves will often drop the following summer, rendering an unsightly landscape ornamental. Repeated defoliations may weaken the tree and lead to tree mortality. The needle cast fungus produces small, black fruiting bodies (pycnidia) in the leaves. These bodies often appear to be formed in rows along the long axis of the leaves.

Prescription

Growing disease-free trees is the best method of control. Seedlings should be thoroughly inspected for evidence of this disease before being installed in the landscape or as Christmas tree planting. Install trees in such a manner as to allow for good air circulation around the tree. Weed control around the tree and sufficient plant spacing in the landscape can be very helpful for good air circulation. By keeping the foliage dry, disease development may be minimized or eliminated. Overhead irrigation can create an ideal environment for disease development of landscape trees. If plants are under a sprinkler system, early morning irrigation cycles are best. The angle of spray may need to be adjusted to minimize leaf wetness and duration. Fungicides which contain chlorothalonil can be quite effective if spray applications are made at the onset of the disease. This fungicide is used to protect the developing stems and leaves. Consult the label for any application information. Complete coverage of these materials is essential to provide adequate protection.

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