

CHRISTMAS TREE DISEASES

<http://ctrees.cas.psu.edu/diseases.htm>

<http://www.ncrs.fs.fed.us/epubs/pgctree/pgctree.html>

These diseases generally fall into several categories, based on disease cycle and symptom development.

NEEDLECASTS

<http://www.msue.msu.edu/msue/imp/modc1/41792007.html>

These diseases are caused by fungi invading and colonizing the current year's needles during spring or summer. However, no symptoms appear until the following spring (or fall, in some cases). At that time, the needles turn from yellow to red, brown, die, and drop from the tree. The tree, as a result, is left with only the current year's needles. The fungus, which forms its spores on these dead or dying needles, usually appears first on the bottom of the tree and usually is more severe on the tree's lower portions.

Lophodermium needlecast causes severe damage to Scotch pine Christmas trees, and on red, Austrian, and Scotch pine seedlings in nursery beds.

Naemacyclus needlecast causes severe damage to Scotch pine Christmas trees and nursery seedlings.

Phaeocryptopus needlecast causes severe damage in localized areas on Douglas fir Christmas trees.

Rhizosphaera needlecast can cause severe damage to Colorado blue spruce, and also has been found occasionally on white and Norway spruces.

SOOTY MOLDS

<http://ohioline.ag.ohio-state.edu/hyg-fact/3000/3046.html>

Sooty molds are caused by nonparasitic fungi living on the excrement (honeydew) of scale insects and aphids. They cover the twigs and foliage with a black mass of fungus growth, which can be rubbed off with the fingers; affected trees are distinctly black and unsuited for use as Christmas trees. Insecticides applied to destroy aphid or scale infestations control sooty molds.

NEEDLE BLIGHTS

http://www.oznet.ksu.edu/dp_hfr/extensn/problems/cercospa.htm

<http://www.ipm.iastate.edu/ipm/hortnews/1998/4-3-1998/dothis.html>

http://willow.ncfes.umn.edu/pa_rhizo/rhizo.htm

http://www.oznet.ksu.edu/dp_hfr/extension/problems/dothist.htm

These diseases are caused by fungi which invade and colonize the current year's needles during the spring, summer, or early fall. Symptoms develop immediately. In addition, these fungi produce repeated crops of rain-splashed spores at any time during the growing season. As a result, widespread destruction can occur in a single season.

TWIG BLIGHTS

<http://www.fs.fed.us/na/morgantown/fhp/palerts/diplodia/diplodia.pdf>

These diseases are similar to the needle blights; however, the fungi also kill the younger or older shoots, causing twig or stem dieback.

Diplodia tip blight of older hard pines causes extensive dieback and death of red, Austrian, Scotch, and ponderosa pines. The dead needles and twigs remain attached to the tree with the needles bearing black fruiting bodies protruding from the dead needles. Spores are rain splashed. Cut and burn infected material.

GALL RUSTS

<http://www.ncrs.fs.fed.us/epubs/pgctree/images/pic13.jpg>

<http://www.ext.nodak.edu/extpubs/plantsci/trees/pp789-25.jpg>

Fairly common on hard pine Christmas trees, gall rusts are caused by fungi that invade the current year's young shoot, and colonize the wood and inner bark. They cause wood distortion, and the formation of tumor-like galls. Infection occurs in late spring and early summer with the galls first becoming visible during the fall of the following year. These galls continue to increase in size year after year, and may become a foot or more in diameter. Three or four years after the gall is formed, its surface is cracked open in the spring by large yellow to orange blisters filled with millions of powdery spores.

Pine-oak rust alternates from pines to oaks and back to the pines. Because both tree species are necessary for the fungus to complete its life cycle, disease prevention requires felling of oaks in and around plantations or nursery beds and applying fungicidal sprays to the pines during the spring. The symptoms are identical to pine-gall rust, which needs no alternate host, spreads from one pine to another. Rouging and burning infected trees control this disease. Laboratory study of the fungal spores is the only way of separating these two diseases.

ROOT ROTS

<http://www.acesag.auburn.edu/department/ipm/armrot.htm>

These diseases, caused by many different fungi, are so diverse in symptoms development that they are often extremely difficult to diagnose. In some cases, there may be a gradual stunting of the tree, followed by death after several years; in other cases, the foliage may turn yellow and then red with the tree dying within three months of initial foliage discoloration.

Armillaria mellea root rot is scattered on Douglas fir and spruce Christmas trees. The fungus attacks the roots below ground, spreading by root contact from one tree to another. In the fall or early spring, such infected trees are characterized by a yellowish coloring of the needles. In the spring these needles rapidly turn red and then almost a purple-brown in the following spring. By this time, the tree is dead. Examination of the inner bark at the base of the tree or on the main roots will usually show a heavy white mycelial mat of fungus tissue. There is no known control method.

Verticillium root rot occurs in West Virginia. This fungus survives indefinitely in the soil, attacking the roots of eastern white pine and other species. The young candles droop, the tree turns yellow and then red-brown, and the wood in the base of the tree and the larger roots become discolored. No control other than possibly soil fumigation is known.

Additional References:

Hansen, E.M. & Lewis, K.J. Compendium of Conifer Diseases. 1997. The American Phytopathological Society. St. Paul, Minn.