

Pesticide Certification Information

#22

DISEASES
OF
CHRISTMAS TREES

WEST VIRGINIA UNIVERSITY
EXTENSION SERVICE
AN EQUAL OPPORTUNITY/
AFFIRMATIVE ACTION INSTITUTION

DISEASES OF CHRISTMAS TREES

In general, these diseases fall into several categories, more or less separated on the basis of disease cycle and symptom development.

NEEDLECASTS

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

Lophodermium needlecast is severe on Scots pine Christmas trees, and on red, Austrian, and Scots pine seedlings in nursery beds. It is controlled by fungicide applications applied weekly to nursery beds from July 1 to October 1. For each 100 gallons of spray use manex plus zinc (Manzate D) 80% WP - 1 1/2 pounds plus 4 oz. of DuPont spreader-sticker. Or use chlorothaliniil (Bravo 6F) 2 1/2 pints. For plantations use the same materials and spray every 3 weeks starting July 15 through September 1.*

Naemacyclus needlecast is severe on Scots pine Christmas trees and nursery seedlings. No controls are known.

Phaeocryptopus needlecast is severe in localized areas on Douglas fir Christmas trees. There are no registered fungicide sprays for this disease.

Rhizosphaera needlecast can be severe on Colorado blue spruce, and also has been found occasionally on white and Norway spruces. Spray weekly in May and June with Bordeaux 8-8-100.

SOOTY MOLDS

Sooty molds are caused by fungi which are not parasitic, but live on the excrement (honey dew) 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 Christmas trees. It is controlled by insecticides applied to get rid of the aphid or scale infestations.

*Good control in plantations is dependent on complete spray coverage which only can be achieved through the use of the right equipment, a good access road layout to the trees and good weed control around each tree.

NEEDLE BLIGHTS

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. Further, these fungi produce repeated crops of rain-splashed spores at any time during the growing season. Thus, disease incidence can "blow-up" and result in widespread destruction in a single season.

TWIG BLIGHTS

These diseases are similar to the needle blights, except that the fungi also result in the total killing of the younger or older shoots, giving rise to a twig or stem dieback.

Diplodia tipblight of older hard pines causes extensive dieback and death on red, Austrian, Scots, and ponderosa pines. The dead needles and twigs remain attached to the tree, and the needles bear black fruiting bodies which protrude from the dead needles. Spores are rain splashed. No control at present, other than to cut and burn infected material.

GALL RUSTS

Gall rusts are fairly common on hard pine Christmas trees. These are caused by fungi which invade the current year's young shoots, and colonize the wood and inner bark. They cause distortion of the wood, and the formation of tumor-like galls. Infection occurs in late spring and early summer, and the galls first become visible 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, in the spring its surface is cracked open 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. Both tree species are necessary for the fungus to complete its life cycle. It can be prevented by felling oaks in and around plantations or nursery beds, and also by fungicide sprays applied to the pines during the spring. The symptoms are identical with **pine-pine gall rust**, which needs no alternate host but spreads directly from one pine to another. This disease is controlled by roguing and burning infected trees. These two diseases can be separated only by laboratory study of the spores.

ROOT ROTS

These diseases are caused by many different fungi and are so diverse in symptom 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, then red, and the tree may die within 3 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 attacked trees are detected by a yellowish color of the needles. In the spring these needles rapidly turn red, then almost a purple-brown. 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. No control is known.

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