

# PINE NEEDLE CAST

## Overview

Pine needle cast is a catch-all term referring to the phenomenon of needle drop or color change as a result of natural senescence (like fall colors in deciduous trees) or various fungal infections. These fungi, including *Lophodermella* spp., *Lophodermium* spp. and *Ploioderma* spp., infect most southern pine species, but longleaf pines are tolerant/resistant. Infected needles lose their chlorophyll and drop, reducing tree growth. Infection is most severe in dense plantings on small trees and on the lower branches of larger trees. Stands on bedded sites are more prone to infection by these fungi. Wet weather in summer or fall can incite these diseases in susceptible trees. Rarely do needle cast diseases result in mortality in the Southeast, but they do reduce growth and can weaken trees if trees are infected in multiple years.

## Hosts

Various pine spp.

## Signs/Symptoms

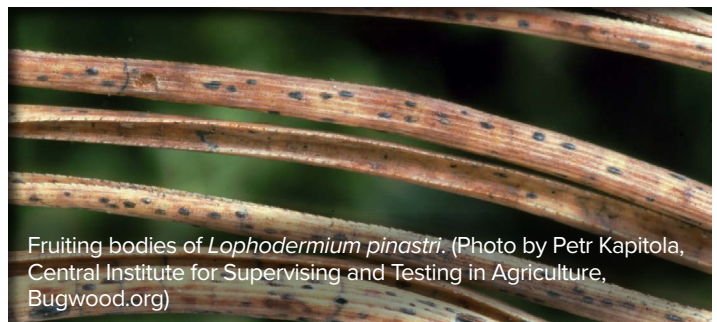
Infected needles will not show overt symptoms early on. As the disease progresses, needles lose chlorophyll around infection sites, resulting in brown spots with yellow margins. As these spots enlarge, the needles turn brown, gray or red and eventually drop in late spring or early summer. Both *Lophodermium* and *Ploioderma* cause distinct black spots to emerge on infected needles in the spring/summer as the fruiting bodies mature. Spots caused by *Lophodermium* fruiting bodies are usually football-shaped or even round, whereas those caused by *Ploioderma* are usually linear. Because trees vary greatly in their susceptibility to these fungi, it is common to see one stand entirely affected while an adjacent stand enjoys immunity.

## Disease Cycle

*Lophodermella* infects needles in early summer but only shows symptoms the following spring when infected needles turn red. Fruiting bodies appear on the needles in early summer, infecting new needles. The needles that were infected the



Loblolly pines infected with a *Ploioderma* spp. Note that the bases of the needles are often still green.



Fruiting bodies of *Lophodermium pinastri*. (Photo by Petr Kapitola, Central Institute for Supervising and Testing in Agriculture, Bugwood.org)

previous summer drop after the fruiting bodies mature. *Lophodermium* and *Ploioderma* infect needles in wet summers. Brown spots with yellow margins appear at infection sites on needles in middle to late fall. These spots expand, and in the spring most of the infected needles appear yellow or brown, though many will remain green at the base. Infected needles drop in the summer, and the infection cycle begins again.

## Timeline

Infection starts in young needles in cool wet weather in late spring or early summer, but symptoms are not prominent until the following winter or spring.

## Range

These diseases can infect pines throughout the southeastern U.S.

## Management

Management is not usually required. Prescribed burns are of marginal value as most of the spores are released from needles still on the tree.