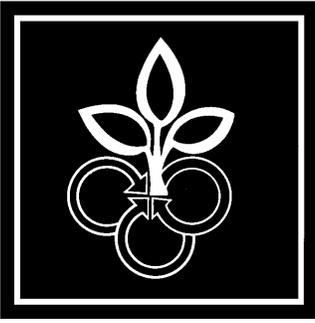


DEPARTMENT OF

B · O · T · A · N · Y



PLANT · PATHOLOGY

PURDUE UNIVERSITY • WEST LAFAYETTE IN

Ornamental Diseases



Purdue University
Cooperative Extension Service

Lophodermium Needlecast

Paul C. Pecknold, Extension Plant Pathologist

The traditional Christmas tree of Indiana, Scotch pine, is frequently apt to have lower needles which brown and drop. This problem is often caused by a fungal disease known as *Lophodermium* needlecast. Though the disease is only rarely important under forest conditions, it can cause severe loss in nursery operations and Christmas tree plantations. It may also cause unsightly damage to Scotch pine grown for ornamental purposes or as windbreaks.

Cause

Lophodermium needlecast is caused by the fungus *Lophodermium pinastri*. During rainy weather in August, September, and October, windborne spores of the fungus are carried from

diseased to healthy needles. Most spore release occurs in September. If weather conditions are favorable, once a spore lands on a needle it will germinate and cause infection; however, needle infection will not be noticed until the following spring when trees begin to brown and drop needles.

Symptoms

The browning of needles on lower branches first appears in early spring (April-May). The most common cause of brown foliage in spring is winter burn. Therefore, carefully examine the affected trees before reaching conclusions on the cause of the damage. Winter burn usually occurs on the windward side of trees and affects the tops of the trees, with foliage that was under snow remain-



Figure 1. Needles brown in spring; injury is most severe on lower branches.

ing green and healthy. Lophodermium usually occurs in a random pattern on all sides of the tree and damages the lower branches while the upper foliage remains green (Figure 1).

Small, yellow-brown, bar-like spots form on needles which soon turn brown and drop. It is this stage which refers to the name "needlecast." The current season's growth will not show damage but remain a healthy, green appearance as contrasted to the dead, brown interior needles of previous years' growth. Fruiting bodies of the fungus develop on fallen needles over the summer. They appear as raised, black, football-shaped structures which may be scattered along the length of the needle or form in linear rows (Figure 2).

Management

Early detection and prompt application of control measures can prevent severe damage from occurring. A close inspection of plantings in spring will help locate possible trouble spots where control measures should be focused.

Cultural controls: Start with disease-free planting stock. If needlecast has been a problem, do not grow the short-needled "Spanish" Scotch pine and "French Green" varieties which are particularly susceptible. If possible, avoid planting in fog prone or low areas with poor air drainage.

Good weed control is critical. Do not allow weeds or tall grass to grow up around trees. Avoid planting next to Scotch pine windbreaks which may serve as a source from which disease can spread. When harvesting trees, do not leave live branches or stumps; they also may serve as a disease source in following years.

Chemical controls: Both mancozeb (Dithane) and chlorothalonil (Bravo, Daconil) are registered for control of Lophodermium needlecast. If mancozeb is used, include a spreader-sticker to obtain adequate coverage. A spreader-sticker is not needed with chlorothalonil. Follow all label instructions regarding amounts of pesticide to use, method of application, and safety warnings.

Timing of spray applications is critical. Infected plantings should be sprayed three times, beginning in late July, in mid-August, and again in mid-September. In severely

infected plantings an additional spray may be required in late September or early October, especially if wet weather prevails during this period. Conversely, in lightly infected plantings, the initial, late July, spray may be omitted if dry weather prevails at this time. **Note:** Studies show September to be the key month in which maximum spore release and infection occur.

References to products in this publication is not intended to be an endorsement to the exclusion of others which may be similar. Persons using such products assume responsibility for their use in accordance with current label directions of the manufacturer.

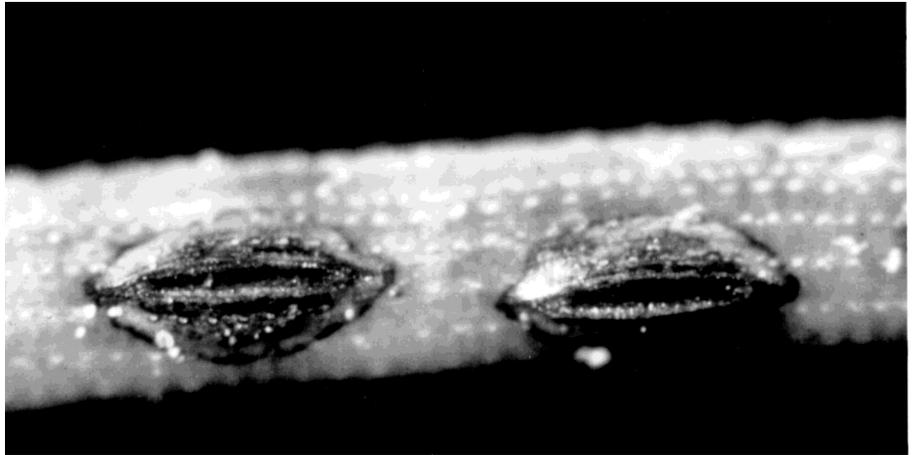


Figure 2. Mature spore-producing bodies are football-shaped.



This material may be available in alternative formats.

REV 6/96 (2M)

Cooperative Extension work in Agriculture and Home Economics, state of Indiana, Purdue University, and U.S. Department of Agriculture cooperating; H. A. Wadsworth, Director, West Lafayette, IN. Issued in furtherance of the acts of May 8 and June 30, 1914. The Purdue University Cooperative Extension Service is an equal opportunity/equal access institution.

