



Cyclaneusma Needle Cast:

Cyclaneusma minus (syn. = *Naemacyclus minor*)

Introduction

Cyclaneusma needle cast was once mistaken for natural senescence occurring in the interior of pine trees. Eventually it was discovered that a fungus was indeed responsible and that it could be managed with a fungicide. Cyclaneusma needle cast is caused by a fungus that mainly attacks Scots pine, although Austrian and Eastern white pine as well a few other pine species may also be infected. This disease may be found on all but the current season's needles.

Symptoms and Signs

Symptoms begin in early Autumn when needles within the interior of the infected tree begin to develop yellow spots, then yellowing progresses until the entire needle is yellow. As the Autumn season progresses, infected needles develop more of a tan color, and brown transverse bands begin to become apparent on the needle surfaces (Fig. 1).



Figure 1: Tan older needles with dark, transverse bands are characteristic of Cyclaneusma Needle Cast on Scotch pine. (provided by Dr. George Hudler, Cornell University)

Disease Cycle

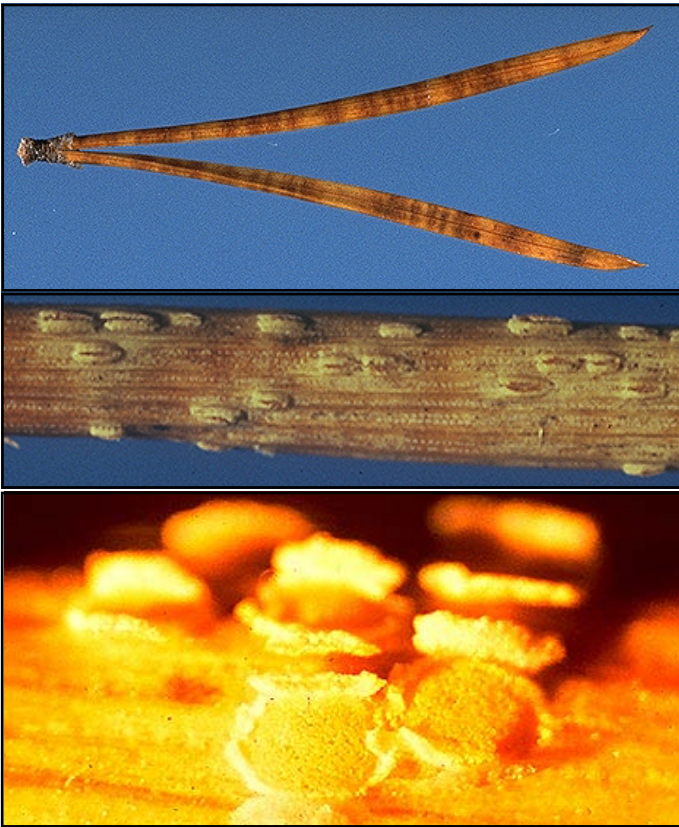
The infected needles will overwinter in this manner, with many of them remaining on the tree through the winter months. In the spring, small (2-3 mm or about 1/16 in long) cream colored blisters develop on the infected needles. During wet weather, possibly beginning as early as March and going through October, these fruiting bodies split open and release spores into the air which land on needles and infect them. Needles are infected throughout the growing season as the fruiting bodies release more spores, but the initial symptoms may not develop until at least 10 months after infection occurs.



Figure 2: Symptoms on infected trees in Autumn in New York (provided by Dr. G.W. Hudler, Cornell University)

Management Strategies

It may be difficult to manage Cyclaneusma needle



Figures 3, 4 & 5: Progression of needle symptoms starting with dark transverse bands, followed by pustule development after needles die, and finally mature pustules swelling and releasing masses of powdery spores (provided by Dr. George Hudler and Kent Loeffler, Cornell University).

cast because infected needles may remain attached through the winter and spring, and spore production and infection can take place whenever temperatures are above freezing and needles are wet. As symptoms may not develop for almost a year after infection occurs, newly infected needles will not develop symptoms until the following Autumn, making the effectiveness of pesticides applied the first season difficult to evaluate.

As infected needles that are on or even under the tree may release spores any time during the growing season, to protect needles, a registered fungicide must be used throughout the growing season. Five treatments are recommended to provide the best protection with the first beginning in March when spore production may be at its peak. Continue treatment about every 5-6 weeks through October to provide maximum protection of the foliage.

In Christmas tree plantations, if the infection level is not yet severe, an individual tree's appearance may be improved just prior to harvest by using a leaf blower to forcibly remove infected needles from the trees' interior.

References

Sinclair, Wayne A. and Howard H. Lyon. 2005. *Diseases of Trees and Shrubs*, 2nd ed. 660 pages Comstock Pub. Associates

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Hansen, Everett M. and Katherine J. Lewis. 1997. *Compendium of Conifer Diseases*, 128 pp. APS Press.

Chastagner, Gary A. (Ed). 1997. *Christmas Tree Diseases, Insects, and Disorders in the Pacific Northwest: Identification and Management*. 156pp. MISC01886. Washington State University Cooperative Extension, Pullman, WA 99164-5912.

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READ THE LABEL BEFORE APPLYING ANY PESTICIDE! Changes in pesticide regulations occur constantly. All pesticides distributed, sold, and/or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office.

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