

Cytospora Canker of Spruce

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The principal hosts of cytospora canker, caused by the fungus *Leucostoma kunzei* Fr. (asexual form: *Cytospora kunzei* Sacc.) are the Colorado blue spruce and its varieties. The disease also occurs on Norway Spruce, Koster's Blue Spruce, White Spruce, Douglas Fir and other spruces planted as ornamentals. The most commonly attacked trees are 15-25 years old and 20-40 feet high.

SYMPTOMS

The most striking symptom of cytospora canker is the death of branches. Usually those nearest the base of the tree die first (**Figure 1**). There is a progressive dying of branches upward in the tree, but the tree seldom dies outright as only a few limbs are killed each year. However, the progression of dieback ruins the symmetry of the tree and reduces its aesthetic value.

The actual girdling caused by the fungus will occur on any part of the branch except the small twigs. Cankers are inconspicuous, with little or no bark deformation. The fungus grows throughout the inner bark causing the death of the distal portion. Needles on infected branches turn grayish-green, then brown, and may drop immediately or persist on the branch for a year.

A heavy pitch flow is characteristic of the disease. The pitch is clear amber color when freshly exuded, but later it hardens and produces a crusty whitish coat over the cankers (**Figure 2**). Lower healthy branches sometimes become covered with resin exuded from infected upper branches.



Fig. 1. Lower branches of blue spruce killed by the cytospora canker fungus.

If the bark is shaved carefully in the area between diseased and healthy tissues, tiny black fruiting bodies (pycnidia) of the fungus will be visible (**Figure 3**). Spores (conidia) ooze from the fruiting bodies during wet spring and summer weather and are capable of causing new infections if they land on freshly wounded wood. How spores are transmitted from diseased to healthy trees is unknown.

CONTROL

Detecting infected branches early reduces the probability of more extensive disease development. Because infected branches cannot be saved, prune them flush with the trunk. Prune only during dry weather to avoid spreading spores to healthy branches. Burn affected branches promptly. If not destroyed, the cankered area will continue to produce spores for many weeks. Continuous surveillance for detecting new cankers is especially important.

Spruce trees subjected to drought or to other environmental stresses appear to be more susceptible to cytospora canker than vigorous trees. Hence, fertilizing and watering during dry periods help promote tree vigor.

There are no chemical sprays that give satisfactory control of cytospora canker on spruce.

There are many other Extension bulletins related to this topic that you may find useful. Three that cover a wide range of ornamental landscape problems are: E-1936, *Selecting Ornamental Plants*, price 20 cents, single copy free to Michigan residents; E-1947, *Planting and Care of Ornamental Plants*, 35 cents; and E-2024, *Diagnosing Problems of Ornamental Plants*, 65 cents.

For these and other Extension bulletins, contact your county Cooperative Extension Service office.



Fig. 2 Resin flow at canker sites hardens to a white crust.



Fig. 3 Black areas just under the bark are pycnidia of *Leucostoma kunzei*.



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Issued in furtherance of Cooperative Extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. J. Ray Gillespie, Interim Director, Cooperative Extension Service, Michigan State University, E. Lansing, MI 48824.

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