



Canker Diseases of Poplar: *Various fungi*

Introduction

Ornamental poplars (trees in the genus *Populus*) are frequently attacked by microorganisms that kill the outer wood and bark of stems and branches, causing canker diseases. Fungi are common causes of these diseases, and the four most commonly associated with poplar (and willow) cankers in New York State are described here.

Cytospora chrysosperma and *Leucocytospora nivea* can attack any species of poplar, but Lombardy, Simon, Carolina and Silver-leaf poplars are most susceptible. Willows (*Salix* spp.) such as weeping, black, and white willow may also sustain damage from these fungi.

Crytodiaporthe populea is most severe on Lombardy poplar but may be found attacking other poplars as well. Species such as bigtooth, European, and trembling aspens are generally resistant as are various cultivars of *P. x berolinensis*, *P. x canadensis* (Carolina poplar), *P. canescens* (gray poplar), *P. fremontii* (Fremont cottonwood), *P. maximowiczii*, *P. trichocarpa* (black cottonwood), and assorted hybrids.

Hypoxyton mammatum affects trembling (quaking), bigtooth, and European aspen, as well as white poplar, and pussy willow.

Symptoms and Signs

The most conspicuous symptoms of these diseases are yellow, brown, or black areas in the bark that delineate the cankers. Many cankers are confined by host defense reactions soon after they form, and

their effects on overall plant health are minimal. Others, however, continue to enlarge and may either kill the affected part by girdling it or weaken it so much that it breaks.

Crytodiaporthe populea (cause of Dothichiza canker) may either infect bark directly through wounds, or it may first infect leaves and proceed from there to colonize stems and branches. Dothichiza cankers often have a ridge of callus growth around their margins. These cankers are uncommon on young trees but very often cause serious dieback on individuals 10 or more years old.

Infection by both *Cytospora chrysosperma* and *Leucocytospora nivea* occurs through wounds in the bark made by insects, man, or other animals, or as a result of mechanical abrasions. Infected bark turns from its normal color to dull yellow to brown and minute pimples, the fruiting bodies of the causal fungi, may cover the affected portions of the bark. Environmental or cultural conditions resulting in water stress seem to be major contributing factors to the occurrence of these two diseases.

Hypoxyton mammatum causes elongate cankers on the stems of trembling aspen and, to a lesser extent, on bigtooth aspen, European aspen, white poplar, and pussy willow. On quaking aspen, bark turns from its normal gray-green color to yellow to black. As it dies, it cracks and falls away from the tree in discrete chunks, leaving the infected area looking as if it had been pecked at by a bird. Wood beneath infected bark exhibits a distinct black and white streaking or mottling. Young, open grown trees are most susceptible to *Hypoxyton* canker.

Disease Cycle

In the case of all four of these diseases, reproductive bodies of the causal fungi begin to appear within a year of infection. These structures produce spores which may be carried to new infection sites by wind, rain, insects, birds, or mammals, or on pruning tools. Wet weather usually favors infection by these pathogens.

Management Strategies

No pesticides are known to prevent the occurrence of these diseases. Thus the best approach to their management is to maintain trees in a state of vigorous growth. Cultural practices that promote good growth include fertilization, watering during drought, and avoidance of unnecessary wounding. Fertilize annually in spring or late fall. Water trees deeply during dry periods in the summer. Be sure to wet the soil to a depth of 6 inches. Avoid damage to the root system by minimizing foot and vehicular traffic in that portion of the soil covered by the crown. Where pruning must be done, prune poplars in early to mid summer. Do not prune in late fall or winter.

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