Cytospora Canker

O & T Guide OD-6

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Hosts: Cytospora canker is caused by several species of the opportunistic fungus *Cytospora*. This fungus is a relatively weak pathogen which typically attacks weak, stressed trees. In New Mexico, this disease commonly affects cottonwood, poplars and willows, and has been associated with the decline or death of many tree species, including stone fruits, apple, elm, spruce, and pecan.

Symptoms: Circular, elongated or irregular-shaped cankers first appear on infected trees as brown, slightly sunken areas in the bark of branches and trunks. As the canker enlarges, the outer bark may become black, brown, gray, reddish brown, or yellow. The inner bark turns reddish-brown to black in color and may have a foul, salty odor. The discolored inner bark often exhibits a zonate pattern caused by the yearly growth of the fungus. As the cankers grow, they begin to girdle the branches resulting in wilting, poor growth and, eventually, dieback. Cankers quickly girdle small branches and twigs resulting in rapid dieback. It may take several years to completely girdle large limbs and trunks. Cankers frequently start at wound openings. Pinhead-sized black or orange fruiting bodies (pycnidia) are produced on the outer bark of the cankers. These fruiting bodies help to distinguish Cytospora canker from other canker diseases. Under moist conditions, these fruiting bodies produce spores on long, coiled, thread-like tendrils. Watery ooze is commonly associated with the disease on aspen trees and infected stone fruit trees often exude gummy ooze. The cankers on spruce trees are sunken and surrounded by swollen callus tissue. Black fruiting bodies may appear in the cankers and the canker may ooze copious amounts of resin. As the cankers enlarge, they girdle the branches and the needles turn yellow then reddish-brown as they die. Eventually, the affected branches die. The disease typically starts on the lower branches and slowly kills the tree from the bottom up.

Dieback caused by Cytospora canker. Photo: J. K. Clark, University of California.

Canker with fruiting bodies caused by *Cytospora*. Photo: Food and Agriculture Organization of the United Nations.

Thread-like tendrils produced from pycnidia of Cytospora. Photo: B. Cain, U.S. Forest Service.

Oozing associated with Cytospora canker. Photo: C. E. Swift, Colorado State University, Extension.

Cytospora canker on spruce. Photo: University of Minnesota, Plant Disease Clinic.

Conditions for Disease: Cytospora canker only attacks trees that have been weakened by other stresses. It will not infect healthy, undamaged trees. The most common predisposing condition is winter injury; however plants stressed by other factors such as drought, low fertility, sunscald, insects, other diseases, root damage, and mechanical injuries are also susceptible. The fungus overwinters in established cankers. Spores are spread by rain, wind, insects, birds, humans, and pruning tools. The fungus is most active in warm (above 85 ºF), moist conditions.

Management: Since this is a disease of weak, stressed trees, the best management is to prevent infection by keeping trees from becoming stressed. Maintain good water and fertilizer practices and prune out injured branches as they occur. On infected trees, remove all dead and dying branches. Do not prune trees when bark is wet. Clean pruning tools between cuts with a solution of 10% household bleach or 70% alcohol. Destroy prunings. Promote vigorous, strong growth on affected trees with proper water and fertilizer management. Avoid physically or chemically injuring the bark. No fungicides are available to treat this disease.