Cherry Disease - Bacterial Canker

While bacterial canker, Pseudomonas syringae, can occur on all stone fruit trees and on apple and pear blossoms, it is only important in the Northeast on sweet and ornamental cherry trees.

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Gumming is frequent in the spring and fall, when the disease is most active. Photo by K. Peter.

It is caused by the bacterium Pseudomonas syringae. Several other names (most commonly, gummosis and sour sap) have been used for the same disease.

Symptoms on sweet cherry trees

Bacterial canker affects branches, twigs, buds, leaves, and fruit. The most conspicuous symptoms are the cankers and the dying branches they girdle. On twigs cankers are darkened areas often located at the base of buds. On limbs or trunks cankers are frequently darker than normal bark, sunken in their centers, and may extend for a considerable distance. Gumming is frequent in the spring and fall, when the disease is most active. Leaves and shoot growth beyond the canker may wilt and die during the growing season when cankers girdle a branch or the trunk. Leaf and flower buds are killed during the dormant season, probably as a result of infection during the fall. Small cankers often develop at the base of these dead buds. At times, infected fruiting spurs blossom normally, only to wilt and die shortly afterward.

Conditions for Infection

During periods of cool, wet weather after bloom, leaf and fruit infections may be common. The leaf spots are mostly angular in shape and dark purple, brown, or black. The infected areas of the leaf may drop out, producing a tattered appearance, or the entire leaf may yellow and fall. Fruit infection shows as deep, black depressions, as does infection of fruit stems.

Disease cycle

Causal bacteria overwinter in the margins of cankers in wood and in infected buds. In spring, during wet periods, the bacteria multiply and ooze from the cankers. Spread by rains, they enter the plant through natural openings or wounds. Periods of frequent rain, cool temperatures, and high winds are most favorable for infection. Frost-injured leaves and blossom spurs and cold-injured trees seem especially susceptible. With the higher temperatures of late spring and summer, disease development stops. At this time the newly formed buds become infected through either leaf scars or bud scales, or both.

Disease management

While bacterial canker can be a severe disease, it is often much more severe on cold-injured trees and trees growing in sites with poor internal soil drainage.

The causal bacteria can be transmitted by pruning tools, so these should be disinfected between prunings if bacterial canker is present. For trees with a known history of bacterial canker, pruning is best completed after harvest during the summer when conditions are hot and dry. Bacterial populations will be at their lowest during this period and the risk for infection is reduced. Affected limbs should be pruned several inches below the canker so that an "ugly stub" remains in order to limit the spread into the tree.

Sprays during the growing season have not been effective in controlling the disease. Some benefit has been achieved from copper applications made when most of the leaves have dropped in the fall and just before bud swell in the spring. For maximum benefit, these sprays should be continued for several years on susceptible trees. Research out of Oregon has shown using an application of 10% lime sulfur starting at leaf drop (September – October) is very helpful controlling the disease for the coming season. Ideally, daytime temperatures should be 70-75°F, which will allow the lime sulfur to heat up and kill the bacteria. Since lime sulfur will wash off, rain should not be in the forecast at the time of application. Only one application per season is necessary.