
Bacterial Canker

Pseudomonas syringae pv. *syringae* and *P. s.* pv. *morsprunorum*

I. Introduction: Two related bacteria, *Pseudomonas syringae* pv. *syringae* van Hall and *P. s.* pv. *morsprunorum* (Wormald) Young et al., can cause bacterial canker. Both pathogens affect sweet cherry, sour cherry, plums and prunes in Michigan and the neighboring province of Ontario, Canada. Disease outbreaks are sporadic and more frequent on sweet cherry than on sour cherry. *P. s. syringae* is found on peach in the southeastern United States.

II. Symptoms: The disease attacks most parts of the tree (*Photo 129*). Cankers on trunks, limbs and branches exude gum during late spring and summer (*Photo 130*). Leaves on the terminal portions of cankered limbs and branches may wilt and die in summer or early autumn if girdled by a canker. Occasionally, large scaffold limbs are killed. Leaf and fruit infections occur sporadically, but they can be of economic significance in years with prolonged wet, cold weather during or shortly after bloom. Leaf spots are dark brown, circular to angular, and sometimes surrounded with yellow halos (*Photo 131*). The spots may coalesce to form large patches of dead tissue, especially at margins of



Photo 129. A. L. Jones and T. B. Sutton

leaves, or the centers of the necrotic spots may drop out, resulting in tattered leaves. Infected leaves may abscise during midseason. Lesions on green cherry fruit are brown with a margin of wet or water-soaked tissue (*Photo 132*). The affected tissues collapse, leaving deep, black depressions in the flesh, with margins becoming yellow to red as lesions and fruit age. On fruit stems, lesions are elliptical and brown with watersoaked margins.



Photo 130. A. L. Jones and T. B. Sutton

Infected leaf and flower buds may fail to open in spring, resulting in a condition referred to as 'dead bud.' Small cankers often develop at the bases of these buds. Other infected buds open in spring but collapse in early summer, leaving wilted leaves and dried-up fruit. If blossom infection occurs, whole blossom clusters collapse as infection spreads into the fruit-bearing spurs (*Photo 133*). Blossom blight and spur blast are most likely in years when leaf and fruit infections are common.



Photo 131. A. L. Jones and T. B. Sutton

III. Disease Cycle: The bacteria can survive from one season to the next in bark tissue at canker margins, in apparently healthy buds and systemically in the vascular system. Bacteria multiply within these overwintering sites in the spring and are disseminated by rain to blossoms and to young leaves. Bacteria of both pathovars can live in an epiphytic phase on the surface of symptomless blossoms and leaves from bloom through leaf fall in autumn. After leaves abscise in autumn, the bacteria may enter the tree through fresh leaf scars.

Outbreaks of bacterial canker are often associated with prolonged periods of cold, frosty, wet weather late in the spring or with severe storms that injure the emerging blossom and leaf tissues.

Freezing can predispose the tissue to infection, but infection depends on the presence of wet weather during the thawing process. Free water on leaf surfaces and high relative humidity are required for at least 24 hours before significant leaf infection can occur

following violent storms. Symptoms appear about 5 days later at temperatures between 70 and 80 degrees F.

IV. Control: The disease is troublesome on some sweet cherry cultivars but not others. Schmidt and Windsor are susceptible and often severely damaged. Hardy Giant is very susceptible-this cultivar should be avoided.

Copper-containing compounds may be of limited value for the control of bacterial canker because strains of *P. s. syringae* resistant to copper are common in orchards with a history of copper usage. Also, copper injures most stone fruit crops. Even on the more tolerant crop species, it becomes more injurious as applications are repeated.

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READ LABELS CAREFULLY AND USE CHEMICALS IN ACCORDANCE WITH LABEL CAUTIONS, WARNINGS, AND DIRECTIONS. REQUEST A MATERIAL SAFETY DATA SHEET (MSDS) FROM THE MANUFACTURER FOR EACH PRODUCT YOU USE.

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