



Stone Fruit IPM for Beginners

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Chapter 7

Bacterial canker

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Bacterial canker

Hosts

Sweet and tart cherries are the main hosts, but can also occur on plums and prunes.

Time of concern

In late summer and fall, as leaves drop off the tree exposing leaf scars, the bacteria that cause this disease (*Pseudomonas syringae* pathovar *syringae* and *P.s. pv. mors-prunorum*) infects buds, in which they overwinter. In spring, infected buds may be dead and fail to grow. However, infected buds can remain viable. As these infected buds begin growing in spring, the young, emerging leaves and flowers may remain symptomless or may succumb to infections, which can be promoted by frosts, frequent rainfall, high humidity and cool temperatures. During spring and early summer, bacteria can gain entry into branches and scaffold limbs via pruning wounds, especially if pruning is done during cool, wet and rainy weather. Young, newly planted trees are at greatest risk of damage from bacterial canker infections. However, any age tree can become infected and show symptoms.

Symptoms, damage and pest cycle

Bacterial canker causes several types of symptoms, depending on the plant tissue infected and the plant's age. Dead buds and spurs fail to grow due to infections originating through leaf scars. Young shoots emerging from infected buds may develop dead areas that coalesce and blight the shoot. Blighted shoots may lead to colonization of shoots and cankers on young wood.

Cankers may also form on shoots under dead, infected buds and spurs or via pruning wounds. Often, but not always, gum is produced by the tree in response to cankers. Though not common, leaf spots can occur when bacteria invade leaves during rainy, cool and humid weather. On leaf spots, look for a shiny, varnish-coated appearance from bacterial exu-



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Damage to a sweet cherry tree from bacterial canker caused by *Pseudomonas syringae* pv. *mors-prunorum*. Trees were pruned shortly before a drenching rain.



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Bacterial canker infection caused by *Pseudomonas syringae* pv. *syringae* of a sweet cherry shoot following a late spring freeze event.

date that has dried on the leaf. Leaf spots may drop out leaving shot-hole symptoms. Damage is caused mostly by the cankers, which destroy shoots and limbs and by systemic infections that can kill trees.

The bacteria live on plant surfaces, such as buds, shoots and leaves. The pathogen is most abundant on plant surfaces during spring and fall when weather is rainy. The bacteria enter leaf scars when leaves drop in fall and from there travel into buds. In spring, infected buds can result in diseased, emerging shoots and cankers can develop under dead buds. Pruning and wounds from limb breaks, etc. that occur during wet weather can open the tree to infection from the bacteria growing on the surface of the plant.

IPM steps for beginners

Because the pathogens live on plant surfaces, most trees probably have latent infections. Therefore, avoid predisposing factors, which include freeze prone areas, sandy soils, poorly drained waterlogged soils or prolonged periods of drought.

The most important aspect of managing bacterial canker is to select and prepare an optimal site for growing cherries and provide them with best cultural practices.

Copper sprays are suggested at 20 and 80 percent leaf drop in fall and at late dormant in spring to reduce the bacterial populations on the trees. However, copper sprays will be ineffective if bacteria in your orchard are resistant to copper.

Prune cherries after harvest when weather is dry and no rain is forecast. Leave a 6-inch-long pruning stub to dead end the infection.



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Gummosis, often associated with bacterial canker infections of stone fruit trees, is a general host defense response to injury. Bacterial canker infections may occur without the presence of gummosis, particularly in trees of low vigor.



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Above, branch pruned in August after harvest showing little to no progression of bacterial canker down the stub. Below, a branch pruned in March showing progression of bacterial canker down the stub and into the uppermost young lateral.



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