

Raspberry disorder: Fire blight

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A serious disease of apple and pear trees in the Midwest, fire blight also affects many other members of the rose family, including raspberry. Although still relatively rare on raspberries, this disease has become increasingly common on certain red raspberry cultivars in Wisconsin.

Symptoms

The most obvious and striking symptom results from infection of the cane tips, which become blackened and crooked over as they die and dry out. This “shepherd’s crook” appearance is typical of fire blight symptoms on other host plants. As the disease progresses down affected canes, the petioles and veins of leaves and portions of the leaf tissue surrounding the midvein turn black. Discolored veins may be more evident on the underside of the leaf. Entire leaves may turn black, wither, and die. Typically, discoloration and dieback is limited to succulent young growth.



This dead cane tip is bent in a “shepherd’s crook,” a classic symptom of fire blight. Note also the black discoloration on the leaves.

The disease can affect fruit clusters as well. Infected peduncles (the stalk of the fruit cluster) turn black and the young, developing berries become hard and dry.

Cause

Fire blight is caused by the bacterium *Erwinia amylovora*. Although this is the same organism that causes fire blight on apple, pear, and other rosaceous hosts, it is a different strain. Thus, the strain that attacks raspberry will not infect apple or pear and vice versa.

The bacteria is likely spread from plant to plant by insects, wind, and splashing water. Rain, high humidity, and warm temperatures favor disease development. It’s not known

how and where the bacteria overwinter, although they likely survive in cankers on infected canes.

Disease management

Cultural controls

Cultural controls are the most important means of managing this disease. The following practices offer effective methods for limiting spread of the disease. For more details, consult Extension publication, *Growing Raspberries in Wisconsin* (A1610).

1. Purchase and plant only certified, pathogen-free plants obtained from reliable nurseries.
2. Practice good sanitation. Remove and destroy diseased canes from the planting as soon as you see



Discoloration and death of leaf tissue along the veins mark the spread of the bacteria within the plant.

them. Disinfect pruning shears in a 10% household bleach solution (containing 1 part bleach and 9 parts water) between each cut to avoid transmitting bacteria to healthy canes. Isopropyl alcohol (70%) or quaternary ammonia may also be used, but the bleach solution is more effective.

3. Manage insect pests to avoid a possible means of moving the bacteria from plant to plant.
4. Do not over-fertilize. Vigorous, succulent growth appears to be most susceptible.
5. Orient rows and prune and thin plants to maximize air circulation around the plants. This will help lower the relative humidity within the plant canopy.
6. Destroy wild or abandoned brambles growing nearby. These plants may serve as inoculum sources for fire blight and other bramble pathogens—particularly viruses.

Cultivar resistance

Fire blight affects both red and black raspberries and blackberries. The effect of fire blight on purple raspberries is not known. To date, there has been no thorough study of resistance to fire blight among commercially available cultivars of raspberry. However, red raspberry cultivars do vary somewhat in resistance to the diseases. Of the more popular cultivars grown in Wisconsin, Fallgold, Latham, and Boyne are known to be susceptible.

Chemical control

Because fire blight has occurred only infrequently on raspberry over the years, no chemical controls have been developed. Consult Extension publication *Raspberry Pest Management for Home Gardeners* (A2128), for detailed recommendations on chemical controls of raspberry diseases.



Dead stem tissue, collapsed leaves, and dead blossoms on an infected raspberry cane.



Discoloration of petioles and veins is often easier to see on the undersides of leaves.



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