



## Fire Blight: Causes and Management

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### DESCRIPTION

Fire blight is a plant disease caused by the gram-negative, rod-shaped bacteria *Erwinia amylovora*. The bacteria divide their cells to grow, and the rate of division is controlled by temperature. Infection is favoured by rain, heavy dews, and high humidity. Infected plants may appear burnt as a result of this. The disease can damage blossoms, fruit, shoots, twigs, branches, and entire trees of apples and pears. Infections are most common during or after blossom. Trees can die from severe fire blight. Young shoots and leaves wilt and bend downward, giving a hook shape. The rate of cell division increases dramatically at temperatures above 70°F, peaking at 80°F. Cell density on and in the plant can actually decrease when temperatures exceed 95°F.

### Host

The disease affects plants in the *Rosaceae* family, which includes trees and shrubs in orchards, nurseries, and landscape plantings. There are roughly 200 species in *Rosacea* and *Rubus*, including crab apple, hawthorn, mountain ash, and Bradford pear.

### Symptoms

A sudden brown to black withering and death of blossoms, fruit spurs, leaves, twigs, and branches are signs and symptoms of fire blight. Although the leaves perish, they do not fall off. A light tan to reddish, watery slime emanating from diseased branches, twigs, or trunk cankers is the first sign of fire blight. After exposure to air, the ooze darkens, producing dark stripes on the branches or trunks. Branches can be bent into what is known as a "shepherd's crook."

### Disease

The disease usually penetrates the tree through natural openings at first, such as blossoms and wounds in the spring. Fire blight

swiftly spreads through the current season's growth into older growth once it has established itself in the tree. Splashed and wind-blown rain can also transport pathogen cells from old cankers to new blooms. When temperatures are warm (70°F-80°F is ideal for the pathogen), pathogen cells multiply quickly on nutrient-rich floral stigmas. Fire blight bacteria do not move uniformly through the bark, but instead invade healthy wood by moving in narrow paths up to 12 inches wide in the outer bark ahead of the main infection. These long, thin infections can spread out 2 feet to 3 feet beyond the original infection or canker's margin. Insects also aid in the disease's spread to healthy plants.

### Management

Remove infected branches 8 inches below the damage during the spring and summer. When the plants are damp, avoid pruning them. Between each cut, soak pruning tools in 70% isopropyl alcohol (rubbing alcohol) or a 10% bleach solution (1 part bleach to 9 parts water solution). Regularly inspect trees for fire blight infections and remove and destroy them. Agrimycin should be used at the commencement of blossoming and every 3-4 days throughout the bloom period. Choose resistant kinds and plant them. Fire blight management becomes extremely difficult when highly sensitive cultivars are planted. If done appropriately, summer trimming of blighted branches can inhibit the spread of germs in the orchard.

### CONCLUSION

The bacteria can survive for months in old wounds and on plant surfaces. Fire blight is very infectious and spreads quickly when: lawnmowers and other landscaping or farm equipment, wind-driven rain those who have the disease on their hands, clothing, or equipment or plant components that are diseased or exposed should be moved (fruit, leaves, or stems).

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