

Fire Blight

by Sara Daleski, Fairfax Master Gardener

Years ago, we lost a beloved Crabapple tree (Malus) whose blooms were a joy. The damage began when a high branch broke in a spring storm. We originally assumed it was struck by lightning. Although we tried to prune out the damage, the tree declined, and we eventually had it removed.

A sample indicated that our tree was killed by a bacterium called *Erwinia amylovora*, also known as fire blight. Every year this bacterium causes millions of dollars of damage to apple, pear and other pome fruit crops in the United States. Fire blight's impact is increasing as warmer, wetter weather from climate change has created a favorable environment for this bacterium to thrive. It also impacts several species in the Rosaceae family, including pyracantha, hawthorn, mountain ash, rose, cotoneaster and spirea.



Fire blight on apple

photo: A. L. Jones, University of New Hampshire

Symptoms

The bacteria typically enter blossoms and spread through vascular tissues of limbs and shoots. The impacts can vary depending on the source of the infection, the susceptibility of the type of tree and weather and temperature. With the right conditions, the disease can infect and kill the entire plant.



Shepherd's crook symptoms on infected branch

photo: Marcus McCartney, OSU Extension, Washington County

Blossom blight is typically the first symptom that appears. Depending on how far it has spread, infections may only affect flowers or extend into the twigs and branches. Blossoms and leaves wilt quickly, turn dark, shrivel and die, but remain attached to the plant. The infected fruits are leathery and dry. A characteristic symptom of fire blight is a blackened, bent branch terminal that resembles a shepherd's crook.

The disease causes dark, shrunken cankers on tree limbs and dark streaking in the wood. Severely infected trees appear burned or scorched by fire. The disease slows in mid to late summer as cankers form, although bacteria remain active near the cankers until fall. These cankers are the source of this pathogen. The bacteria overwinter in cankers and multiply in the spring when warm temperatures, 75° to 85° (24° to 29° C), and wet weather help transmit the disease. Bacterial slime oozes from cankers spread by wind-blown rain, splashing water, birds, insects and pruning tools.

As with my crabapple, bacteria often enter through damage to the tree. The most damaging cankers are those formed on the main stem or base of the plant since they often girdle and kill the plant. With

few exceptions, the disease moves more slowly in woody tissue and often moves down to the base of a branch where it forms a lesion or canker.

Controls

Cultural controls include pruning and removing infected branches, nutrition and site selection. As the bacteria go dormant (November to January), prune and then burn or bury infected twigs and branches. Do not compost them. Prune the infected branch below the point of infection but leave a "stump." You can flag or paint these branches to help you check them. If the disease remains, you can prune off additional material.

Carefully monitor susceptible trees in spring to identify blighted limbs and remove them as soon as possible to avoid spreading. Finally, clean pruning tools after each cut with rubbing alcohol or dilute household bleach (1 part bleach to 9 parts water) during this operation to prevent bacteria from spreading to uninfected areas. Be sure to use sharp tools.

Avoid the excessive use of fertilizers that encourage sprouts and new limbs, which are more susceptible. Also, avoid pooling and splashing water sources that can help spread bacteria and select well-drained sites for susceptible plants. When selecting new plants, consider cultivars with disease resistance.

Chemical control is not usually recommended for fire blight in home landscape situations. For commercial growers, refer to the current Virginia Pest Management Guide for Horticultural and Forest Crops for details on rates and timing of application. The models used to recommend the timing of applications are complex, and experts from Virginia Tech recommend that growers enlist help from Extension agents and researchers.

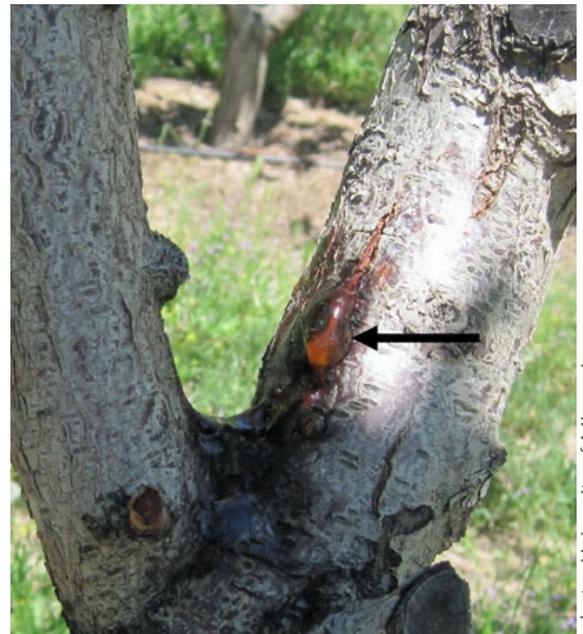


photo: University of Missouri

Bacterial ooze from fire blight cankers

References

- [2025 Virginia Pest Management Guide for Horticultural and Forest Crops](#), Virginia Cooperative Extension
- [Fire Blight of Apple and Pear and Its Control in Virginia](#), C.R. Drake, Plant Pathology, Virginia Cooperative Extension
- [Fire Blight of Ornamentals](#), Mary Ann Hanson, Virginia Cooperative Extension
- [2025 Pest Management Guide - Home Grounds and Animals](#), Virginia Cooperative Extension