



Fire Blight

O & T Guide OD-3

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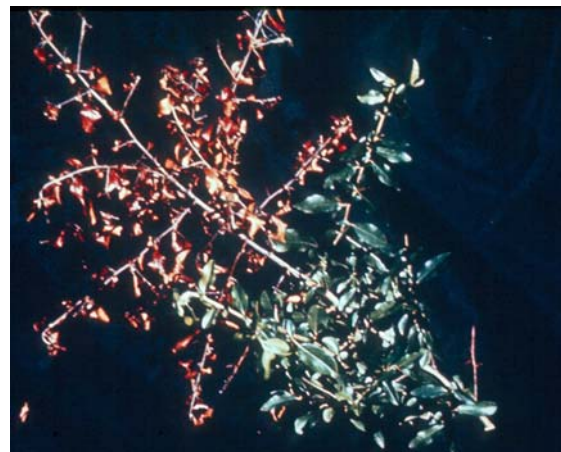
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Hosts: Fire blight is a bacterial disease caused by *Erwinia amylovora*. It affects only plants in the rose family (Rosaceae). In New Mexico, the disease is most common on apple, pear, crabapple, pyracantha, photinia, and cotoneaster. Other hosts include rose, quince, hawthorn, loquat, almond, apricot, plum, cherry, chokecherry, mountain ash, raspberry, blackberry, and strawberry.

Symptoms: Fire blight can infect blossoms, fruit, stems, leaves, and woody branches. The characteristic symptom of fire blight is that affected plant parts (most notably the branch terminals) suddenly wilt, turn black and appear to have been scorched by fire. The afflicted plant parts die but usually cling to the plant. Young, vegetative shoots are shrunken and brown to black, and the tips often curl downward at approximately 180° angles to resemble shepherd's crooks. Dead, slightly sunken, discolored cankers with sharp often cracked margins form on the twigs, branches, and trunk. When the bacterium is active, the inner tissue (under infected bark areas) is water-soaked with reddish streaks. This reddening can help to distinguish fire blight cankers from cankers caused by environmental stress such as freeze injury or sunburn. Severe fire blight infections can girdle and kill branches, major limbs, or entire plants. During periods of high humidity, infected tissue may produce characteristic ooze.



Fire blight on pear (note shepherd's crook).
Photo: Iowa State University.



Fire blight on cotoneaster. Photo: E. Shannon, New Mexico State University.



Fire blight canker. Photo: Government of British Columbia, Ministry of Agriculture and Lands.



Fire blight canker and twig dieback on crabapple. Photo: Missouri Botanical Garden.

Conditions for Disease: The bacterium overwinters at the living margins of cankers, mostly on the branches and trunk or as symptomless infections in leaf and flower buds. In the spring, the bacterium oozes from infected cankers and is spread by splashing water, wind, contaminated pruning tools and insects (primarily bees) to nearby blossoms. The bacterium enters the plant through wounds or natural openings (such as stomata, hydathodes, lenticels, and nectaries). Infection commonly follows hail or other injuries. Environmental conditions favorable for fire blight are rainy or humid weather with

daytime temperatures in the range of 75° to 85°F, especially when night temperatures stay above 55°F. Hot, dry weather (over 90°F) slows or stops disease development, but does not cure the disease. Fast-growing succulent tissue, produced as a result of excessive nitrogen applications, is more susceptible to disease.

Management: Cultural practices which help to reduce the occurrence and severity of the disease include:

- Prune out overwintering cankers during the dormant season.
- Prune active infections as they appear. Prune at least 6-12 inches below the disease margin (margin between healthy and diseased tissue).
- Sterilize pruning tools between cuts using a 10% bleach solution, 70% isopropyl alcohol, or a propane torch.
- Burn or otherwise dispose of all prunings.
- Maintain appropriate fertilizer levels.
- Avoid excessive nitrogen applications.
- Provide adequate water.
- In areas with a history of disease, replant with resistant cultivars.
- Reduce damaging insect populations.
- Copper fungicides and antibiotics can be effective sprays, however, timing is critical and improper use can lead to phytotoxicity (from the copper chemicals) or development of resistance in the bacterial population.