

FIRE BLIGHT OF ORNAMENTALS AND FRUITS

Fire blight, also known as pear blight, or simply blight, is a common and frequently destructive bacterial disease of plants in the rose family (Rosaceae). Pears and quinces are extremely susceptible. Apples, crabapples, and *Pyracantha* species are frequently damaged also. Fire blight occasionally attacks hawthorn (*Crataegus* species, *Spiraea*, *Cotoneaster*, toyon (*Photinia* species), juneberry or service-berry (*Amelanchier* species), loquat, mountain ash (*Sorbus* species), and other related plants.

Development of the disease is favored by a combination of 70° to 85°F temperatures and high humidity caused by dew, rain, fog, or even irrigation – especially overhead irrigation.

Symptoms

Fire blight is characterized by a sudden wilting, followed by shriveling and blackening of blossoms, tender shoots, and young fruits. The affected parts look as though they were scorched by fire – hence the name, fire blight. An infection may progress down a shoot and into the bark of large limbs, where dark, sunken cankers are formed. These cankers slowly enlarge and may eventually girdle the limb.

Disease Cycle

The bacterium *Erwinia amylovora* that causes the disease survives the summer and winter in blighted twigs and cankers. During warm, moist, early spring weather, the bacteria ooze from the holdover cankers in small, milky, sticky drops. The bacteria are carried to blossoms and tender shoots by flies, ants, beetles, and other insects, and by splashing rain. Bees and flies play a major role in spreading fire blight from blossom to blossom, but the beehive is not a holdover source of the bacterium.

Control

During the summer, prune out diseased twigs and branches. Cut well below the edge of the infected area. On large trees like pears, cut back 6 to 12 inches or more where possible. When cutting succulent tissues, sterilize tools between cuts to avoid further spread of the disease. A number of household disinfectants can be used.

Fire blight is usually much worse on succulent growth. Where the disease has been a problem, avoid excessive nitrogen fertilization combined with heavy irrigations and other cultural practices that promote rapid growth.

Blossoms are the most susceptible part of the plant. You can protect them from infection by copper-containing or streptomycin sprays. A minute amount of copper in the blossom is effective. A weak copper-containing spray at one-tenth the rate usually used on foliage – a 1/2-1/2-100 bordeaux spray, for example – successfully controls the disease on pears. You can also use streptomycin sprays at 100 parts per million. The number of applications needed depends on the blooming period. Make the first application when the average temperature (average of the maximum and minimum temperature for a 24 hour period) exceeds 60°F (15.5°C). Apply at 4- to 5-day intervals during periods of high humidity and until late bloom is over. For pears, this may mean five to twelve applications per season.



Hawthorn twig infected with fire blight



Fire blight entered through this pear tree's blossoms, progressed down the shoot, and produced a canker on the branch

For more information about fire blight and other pear pests, refer to *Pear Pest Management*, priced publication 4086, or *Fungal, Bacterial and Certain Nonparasitic Diseases of Fruit and Nut Crops in California*, priced publication 4090.

ADDRESS FOR ORDERS:

Publications
Division of Agriculture and Natural Resources
University of California
6701 San Pablo Avenue
Oakland, CA 94608-1239
(415)642-2431

*The author is Arthur H. McCain, Extension Plant Pathologist,
University of California, Berkeley*

WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in their original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits and/or vegetables ready to be picked.

Thinly spread all leftover spray material on the soil where it cannot contaminate crops or standing or underground water supplies. (Do not pour down sink or toilet.) Wrap empty containers in newspaper and put in the garbage can. Never burn pesticide containers.

PHYTOTOXICITY: Certain chemicals may cause plant injury if used at the wrong stage of plant development or when temperatures are too high. Injury may also result from excessive amounts or the wrong formulation or from mixing incompatible materials. Inert ingredients, such as wetter, spreaders, emulsifiers, diluents, and solvents can cause plant injury. Since formulations are often changed by manufacturers, it is possible that plant injury may occur, even though no injury was noted in previous seasons.

To simplify information, trade names of products have been used.
No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.