Agricultural Extension Service ● University of Minnesota

FACT SHEET

PLANT PATHOLOGY NO. 17–REVISED 1975
HERBERT G. JOHNSON

FIRE BLIGHT

Fire blight, a bacterial disease, was first reported in the United States almost 200 years ago. For the past 50 years, scientists have been searching for a practical way to control it. But the disease is still a major threat to apples and pears, so much so that it seriously limits pear production in the midwestern and eastern states.

In Minnesota, fire blight is most often seen on apples, crabapples, and pears. Occasionally, you will find it on lilacs and mountain ashes. It seldom occurs on apricots, blackberries, cherries, chokecherries, cotoneasters, hawthorns, juneberries, raspberries, roses, spireas, and strawberries, although these plants are susceptible to the disease.

SYMPTOMS

Fire blight derives its name from the symptoms produced. Infected blossoms and leaves are typically dark brown or black as if scorched by fire. Only the terminal 6 to 18 inches of a branch usually are affected in this way, with the extreme tip curling over like a shepherd's staff (see figure 1). Dead leaves remain on the tree throughout the summer.

Fire blight bacteria can move through the vascular tissue from small twigs to larger branches and, thereby, kill large sections of a tree. This condition occurs after a large tree has been infected for several years or in just 1 year on a small diameter tree.

Fire blight bacteria also can move from twigs through stems of immature fruits and create blackened areas on the fruit surface. They sometimes cause a soft rot of the entire fruit.

Figure 1. Twig blight phase of fire blight.

Figure 2. Fire blight canker (arrows indicate canker extremes).

Cankers or diseased areas develop on large or small branches. The bark is slightly depressed, and a definite line delimits diseased from healthy bark (see figure 2). The bacteria overwinter in live tissue at the margins of large cankers; they become the source of new infections the following spring.

CONTROL

Research in other states shows some success in preventing early season blossom blight with sprays containing 50 to 100 parts per million (p.p.m.) streptomycin. Apply the first spray during early bloom if you expect the temperature to be 65°F. or higher and rainfall or relative humidity greater than 60 percent anytime after the first blossom opens. Do not mix fungicides or insecticides with streptomycin.

You will need one or two additional sprays at 4- to 5-day intervals if these weather conditions persist during bloom. Do not spray if temperature during bloom remains below 65° F. or exceeds 85° F., or if rainfall is absent or relative humidity

is low. If you want protection from later season twig blight, continue the streptomycin sprays (50 p.p.m.) at 7-day intervals through mid-July. According to recent research, best results are obtained when spraying is done at night (between 10 p.m. and 4 a.m.). According to federal restrictions, you must not spray bearing trees with streptomycin later than 50 days before harvest.

Instead of streptomycin, you can use a copper-containing spray. All copper spray materials are not registered for apple and pear fireblight control, so it is necessary to check the label for this information. Spray when first blossoms appear and again 4 days later. Some fruit damage may result from copper sprays.

CULTURAL PRACTICES FOR CONTROL

1. During the dormant season, prune off all infected branches larger than 1/2 inch in diameter. If you also can remove all smaller infected twigs, do so; but only a small percentage of them will harbor the bacteria over winter. Mark infected branches during the growing season so you will know which ones to remove later when the leaves are gone. Summer pruning is not advisable because bacteria can easily be spread around the tree on your tools. To lessen this spread during warm months, wipe pruning tools with liquid household bleach between cuts. Cut branches at least 6 inches below canker margins.

2. Break off all sucker shoots as they appear—they are very susceptible to fire blight infection.

3. Avoid excessive pruning because it promotes development of succulent new growth that is very susceptible.

4. If fire blight is a problem, avoid excessive nitrogen fertilization because it also promotes development of succulent new growth.

5. Before buying new plantings, consider varieties with resistance to fire blight (see table).

Minnesota recommended apple, crabapple, and pear varieties according to their reactions to fire blight

Resistant	Moderately resistant	Moderately susceptible	Susceptible
Delicious	Centennial crab	Chestnut crab	All hardy pears
Dolgo crab	Cortland	Connell Red	Beacon
Northwestern Greening	Duchess	Fireside	Hyslop crab
Wedge	Erickson	Minjon	Hibernal
	Golden Delicious	Oriole	Honeygold
	Haralson	Redwell	Jonathon
	McIntosh	Regent	Lakeland
	Melba	Rescue crab	Mantet
	Northland crab		Prairie Spy
	Red Baron		Victory
	Red River crab		Wealthy
	Trail crab		
	Whitney crab		

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