

garden

Bacterial diseases wiped out El Paso's pear orchards

El Paso County in the 30s and 40s was a large fruit-orchard area, with many acres of pear trees.

Because of several uncontrollable external factors, like bacterial diseases such as fire blight, the orchards soon began to decline. Now, the pear orchards are gone, but the fire blight bacterium is still here.

Fire blight, *Erwinia amylovora*, in fact, is one of the major plant diseases nationwide. It attacks more than 75 different host plants including pear, apple, quince, pyracantha, photinia, cotoneaster and loquat.

Damage occurs as blossom blight, twig blight, girdling of branches or in some cases, killing of entire plants. Extent of the damage depends on varietal susceptibility, cultural practices, environmental conditions and control measures.

In spring, when plants are flowering, the disease first appears as blossom blight. Infected blossoms become water-soaked

down to earth

by John White

and turn dark brown. Bacteria then moves down the stem, causing the infected area to become water soaked and appear dark green. From the stem, the bacteria moves into the leaves of the blighted branch or twig. The infected leaves normally remain attached.

Twig blight is similar in its spread to blossom blight. The bacteria rapidly moves down the stem. Little droplets of sap and bacteria called exudate form on diseased tissue and is a source of bacteria, which can be spread by rain and insects to uninfected tissue. Infected twigs become dark green and the bark turns brown and sinks in.

Leaf blight occurs through the stomata (tiny openings in the leaf surface), water pores or wounds. Bacteria spreads by splashing rain and insects. Leaf

infection begins along the leaf margin and spreads rapidly inward.

Cankers develop on limbs and the tree trunk and serve as the bacteria's overwintering place. Cankers normally are sunken and dark. In the spring, cankers exude a sugary exudate that contains viable bacteria. Insects crawling through this exudate or rain washing the exudate help to spread the disease.

In some cases, leaf infection can extend down the petiole into the fruit spur and into the fruit. After the fruit is infected, it turns dark and leathery. Droplets of bacteria can be seen on infected fruit. The fruit usually is retained on the trees.

Here's a quick synopsis of the fire blight disease cycle:

The bacteria overwinter in twig trunk cankers. In the

spring, the cankers exude the exudate. Rains move the exudate to other areas or insects track through the exudate and carry it to blossoms. The bacteria spread in the flower, and pollinating insects carry the bacteria from flower to flower. Later infection is caused by piercing, sucking insects carrying the bacteria to new growth. Cankers are then formed on the stems and serve as the overwintering stage.

Control methods are not 100 percent effective and sometimes can be more costly than the plant you are saving. Any cultural practices that induce excessive growth should be avoided. Excess nitrogen, heavy irrigations and excessive pruning are the major culprits.

No varieties are entirely resistant to fire blight; however, some varieties are more tolerant than others. Pear varieties include Orient and Kieffer. Delicious and McIntosh are among the more resistant apples. Famed plant pathologist Dr. Pa-

scal Pirone reports that Pyracantha varieties *P. Coccinea* F. *Lalandii* or *P. Fortuneon* are quite resistant.

Prune infected portions of the plant 4 to 6 inches below the last visible symptom. Dip pruning equipment in 10 percent household bleach solution to prevent spreading the bacteria.

Excellent results have been obtained when 3 to 4 applications of a weak bordeaux mix are applied beginning with a 10 percent bloom and a continued schedule every 5 to 7 days.

Copper hydroxide (Kocide 101) can be used as a foliar spray. Applications of Zineb have been

used with some success. Antibiotic sprays can reduce the blossom blight phase. Spray 3 to 5 times during bloom. Antibiotics are locally systemic, so do not apply after petal fall. Read label directions on all pesticides carefully before using them.

Remember, there are a lot of cultural and other diseases that have symptoms similar to fire blight. So don't jump to conclusions just because you see a dead branch.

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