



The Plant Doctor's LANDSCAPE TIPS

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Photo 1. Typical shepherd's crook caused by the Fire Blight bacterium on ornamental pear.



Photo 2. A particularly severe case of Fire Blight (note many blighted areas), probably resulting from favorable weather conditions during blossoming. Pruning to control the disease may not be advisable in this situation.

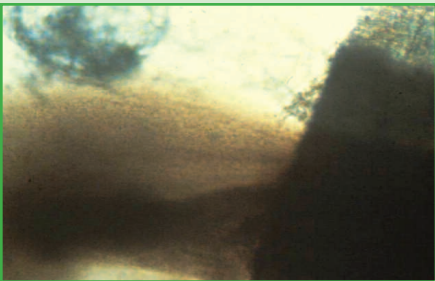


Photo 3. A microscopic view of "bacterial ooze" showing millions of tiny bacterial cells gushing from plant tissue. These bacteria may be splashed to new infection sites or carried on pruning tools or by insects.

FIRE BLIGHT

INTRODUCTION:

Fire Blight is a disease of plants caused by the bacterium, *Erwinia amylovora*. Among the plant diseases, bacterial-incited diseases are relatively rare when compared to fungal-incited diseases; nevertheless, bacterial diseases have the potential to be highly destructive. Members of the rose family (Rosaceae) are affected by Fire Blight. Those plants most commonly affected in the nursery and landscape areas include ornamental and cultivated pome fruit trees, including apple, crab apple and pear, and ornamental plants, such as hawthorne, pyracantha, cotoneaster, spirea, serviceberry, June berry, Photina sp., mountain ash, among others.

SYMPTOMS AND DISEASE CYCLE:

The first sign of Fire Blight on susceptible plants may be either blossom blight or shoot blight in the spring and early summer; on shoots, a shepherd's crook appearance develops (Photo 1). During favorable weather conditions when in bloom, the disease may be quite severe with widespread blight (Photo 2). These initial infections are the result of reproduction of the bacterium to very high populations, called "bacterial ooze" (Photo 3), during warm, wet conditions in spring, after the bacterium overwintered in hold-over cankers (Photo 4). The rapidly growing shoots are most susceptible to infection; blighted shoots produce more bacteria which may infect other shoots, particularly when the shoots are still actively growing. Wounding from hail or other activities, such as pruning, may increase the infections and severity of the disease. Insects, such as bees, aphids and leaf hoppers, may spread the bacteria and encourage infection, especially during bloom or after wounding from hail. Trees and shrubs may be killed if the stem or trunk is invaded from a nearby shoot infection. The symptoms of Fire Blight may appear variable on different species of plants (Photos 5 and 6).

MANAGEMENT:

The control of Fire Blight can be very difficult and tedious. When blighted shoots are noticed in the spring and early summer, they can be pruned from the tree to decrease the likelihood of additional infections; prune-infected areas at least 10 inches below any visible signs of blight and sterilize the pruning utensils with a sanitizing agent between cuts. In severe situations (Photo 2), it may be best not to prune and let the disease run its course; pruning out infections near the scaffold branches or trunk may still be advisable provided more damage is not done with this activity. Avoid irrigation practices that promote bacterial spread and infection of plants through continual moisture application. Also avoid fertilization practices that promote lush, prolonged growth periods that can lead to further infections. During the winter, carefully scrutinize plants for overwintering cankers and prune them out (Photo 4). Some "bactericides" (copper fungicides and antibiotics) on the market are labeled for specific situations; these bactericides are most effective during bloom or immediately after injury from hail storms. Some companies that market tree trunk injection systems claim control of Fire Blight with their products. ■



Photo 4. The Fire Blight bacterium, *Erwinia amylovora*, overwinters in cankers created the previous season. These cankers can be pruned from the tree during the winter to help prevent infections the following spring.

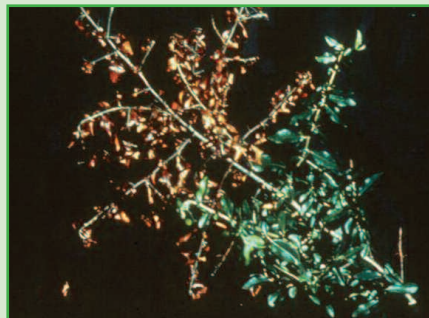


Photo 5. This Fire Blight outbreak on cotoneaster was encouraged by frequent irrigation.



Photo 6. Typical Fire Blight symptoms on Mountain Ash.