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Fire Blight of Ornamental Pear

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Introduction

Fire blight can be a persistent disease problem for the Callery pear (*Pyrus calleryana* 'bradford'). This common landscape tree, often referred to as ornamental pear, is a deciduous, conical-shaped tree that can grow to be 50 feet in height and up to 40 feet in width. The tree is a favorite addition in residential and commercial landscapes. It is grown primarily for its shape and fall colors.

Fire blight is caused by the bacterium *Erwinia amylovora*. This disease can also affect other ornamentals in the Rosaceae family. Some varieties of bearing pear, apple, flowering crabapple, pyracantha, blackberry and quince are susceptible. Rose, cotoneaster and hawthorn are also attacked, but to a lesser extent. If warm, humid conditions occur during flowering, disease can develop rapidly. Fire blight usually becomes most apparent during the spring. Heavy fertilization, which promotes rapid, succulent plant growth, increases disease severity.

Symptoms

The symptoms on ornamental trees and shrubs are very similar to those on apple and commercial pear. The first symptoms of disease are the presence of blighted leaves and blossoms near the twig tips. Leaves wilt and rapidly turn dark brown. Twig tips appear as if they were scorched by fire or damaged by frost and may be randomly distributed throughout the tree. Twigs become blackened as the disease progresses downward toward larger stems, and affected leaves tend to cling to the branches. Twig tips may also develop a "shepherd's crook" (Figure 1), which is useful in disease diagnosis. Stem lesions develop a sunken appearance with small cracks at the margins. Disease severity is directly related to the cultivar and weather conditions at the time of infection. Significant dieback may occur on highly susceptible cultivars (Figure 2, page 2). Susceptible plants may be severely affected by repeated infections by the bacterium.

Figure 1. "Shepherd's crook" symptom on ornamental pear *(photo by S. Vann)*

Disease Cycle

The disease cycle begins in the spring with the infection of blossoms or shoots, providing a future source of the bacteria in "holdover cankers" on infected plants. During wet weather in the early spring, bacteria ooze from these cankers and attract insects that spread the bacteria to other

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Figure 2. Random pattern of blighted twigs

susceptible plants or plant parts. The bacteria are commonly carried to the blossoms, fruit, shoots and leaves by flying or crawling insects, including honeybees. Overhead water can also be an important method of spread. Secondary spread of the bacterium may occur by insects, birds and people using contaminated pruning tools. This infection process continues throughout the summer and into the fall. As outside temperature drops, bacterial infections slow down. Accurate disease diagnosis of affected tissue becomes difficult during the dormant season.

Mana

Growing resistant varieties should be the first priority in preventing or managing fire blight. For landscape trees, diseased wood should be pruned during the dormant season or during an extended dry period when the bacterium is not as active. Wood should be removed 8-10 inches below the edge of the sunken cankers. Pruning equipment should be sanitized with either a 10 percent household bleach solution or a 70 percent alcohol solution following each cut. These solutions will help prevent spreading the bacterium. To avoid rapid susceptible plant growth, it is best to lightly fertilize during the fall rather than the spring. Soil conditions and nutrition affect tree susceptibility. Trees grown in poorly drained sites with low pH values tend to be more susceptible to fire blight. Fertilization regimes should be based on a regular soil test.

In the home landscape, resistant cultivars and selective pruning are the best methods of control for ornamental pears and other woody ornamentals. Chemical control is usually not successful since timing and coverage are very important for control. In commercial operations, copper materials applied during the dormant season followed by regular spray applications of streptomycin beginning at bloom have successfully managed the disease.

Because of the widespread occurrence of this disease on ornamental pear, homeowners may wish to consider an alternative tree for the landscape. For a list of suitable landscape trees, see FSA6126, *Landscape Trees for Specific Uses*, at www.uaex.uada.edu.

Contact your local county Extension office if you suspect bacterial fire blight or need additional information about this disease.

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