

Fire Blight of Apple & Pear

Tree Fruit

Pest
Fact
Sheet **32**

Introduction

Fire blight, caused by a bacterium, is found almost every year to some extent in New Hampshire and in other major apple and pear growing regions of the United States. The annual loss of blossoms and fruit along with the destruction of scaffold limbs make fire blight one of the most destructive of all apple and pear diseases.



*young tree heavily
infected with fire blight*

Description of Fire Blight

Fire blight is most damaging during warm (70°F), humid weather. Blossoms, twigs, leaves, and fruit can all be infected. Usually it is characterized by sudden wilting followed by shrivelling and blackening of the blossoms and young shoots. A characteristic symptom of terminal blight is the bending of the blighted terminal to resemble a shepherd's crook. The dead leaves do not fall, but remain on the tree giving the appearance of having been scorched by fire; hence the name "fire blight". The disease is usually first observed following the blossoming period. Infected fruit turn brown (apple) or black (pear) and eventually shrivel and become mummified.

Dark, sunken cankers are formed on the larger branches. The cankers are often separated from the healthy bark by narrow cracks. These cankers enlarge slowly and may eventually girdle the limb. During moist weather, drops of bacterial ooze are produced on the canker surface. Fire blight is most severe on highly susceptible varieties. Apples: Ida Red, Cortland, Jonathon, Lodi, R.I. Greening, Paula Red, Rome, 20-ounce York and many Crab Apple varieties. Pears: Bartlett, Aurora, Bosc, Anjou, and several Asian cultivars.

Life Cycle

The bacterium overwinters in the live bark at the edge of the cankers on the larger branches. In the spring, sticky amber-colored droplets containing millions of bacteria ooze from the cankers. The bacteria may be spread to blossoms, twigs, and branches by splashing rain, insects, and pruning tools. Injuries in leaves and twigs due to hail increase the spread and development of Fire blight. Infection may be evident within a week, particularly on wounded fruit. A combination of warm temperatures (65 to 85°F) and high humidity near the end of the summer tend to increase disease severity.

Control

Fire blight damage is best reduced by a combination of sanitation and chemical sprays.

Cultural Practices:

Factors that favor succulent growth and production of blossoms also favor development of fire blight. Fertilization should be carefully regulated to prevent succulent growth and over-production of shoots.

On young trees, during dry weather, cut out and burn infected twigs as soon as they can be seen, especially in early summer. The cut should be made at least 12 inches below the edge of the infected area or canker, sterilize cutting tools after each cut with a disinfectant to avoid further spread of the bacteria. A 70% denatured (rubbing) alcohol, 10% household bleach (one part bleach to 9 parts water [thoroughly rinse and oil tools after use]) are satisfactory disinfectants.

During the winter or early spring before growth resumes, all infections from the previous year should be cut out and burned, making cuts four inches below the lower edge of the canker or infected twig. Trunk cankers should be excised by scraping (only those cankers than encompass less than half the circumference of larger branches and trunks.

Chemical Control:

Control of the blossom infection phase is the key to the control of subsequent secondary infection, because without blossom infection there is little opportunity for the bacteria to increase sufficiently to cause significant shoot infection. Infection within shoots can only be stopped by pruning the infected shoots.

Blossoms are the most susceptible part of the plant, but infection can be reduced by proper timing of protectant sprays containing the antibiotic Streptomycin 17% WP at 1/2 lb/100 gal. dilute spray.

Apply the first spray just before blossoms open (full pink stage) and repeat at 4 to 7 day intervals through the blossoming season (3-4 sprays).

Streptomycin or Terramycin is most effective when used alone, but may be combined safely with Bordeaux mix or copper fungicide. Copper fungicides should be applied at or near bud break. Thorough coverage from both sides is essential. Use about 10 gallons of spray for each mature tree. Spray blossoms thoroughly on fire blight-susceptible trees where disease has been a problem in the past. If the orchard has been sprayed and rain or hail should occur, immediately respray.

Summary

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| 1. Causal Agent: | Bacterium |
| 2. Major Disease Symptoms: | Leaf and Shoot Blight; Cankers |
| 3. Parts Infected: | Leaves, Flowers, Fruits, Branches |
| 4. First Noticeable Symptoms: | Immediately after Blossoming |
| 5. Spray Program: | Protectant Sprays |
| 6. Number of Spray Applications: | 3 - 4 |

Stop! Read the label on every pesticide container each time before using the material. Pesticides must be applied only as directed on the label to be in compliance with the law. All pesticides listed in this publication are contingent upon continued registration. Contact the Division of Pesticide Control at (603) 271-3550 to check registration status. Dispose of empty containers safely, according to N.H. regulations.


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