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EC55-1814 Fire Blight of Apples and Pears

John L. Weihing

Wayne C. Whitney

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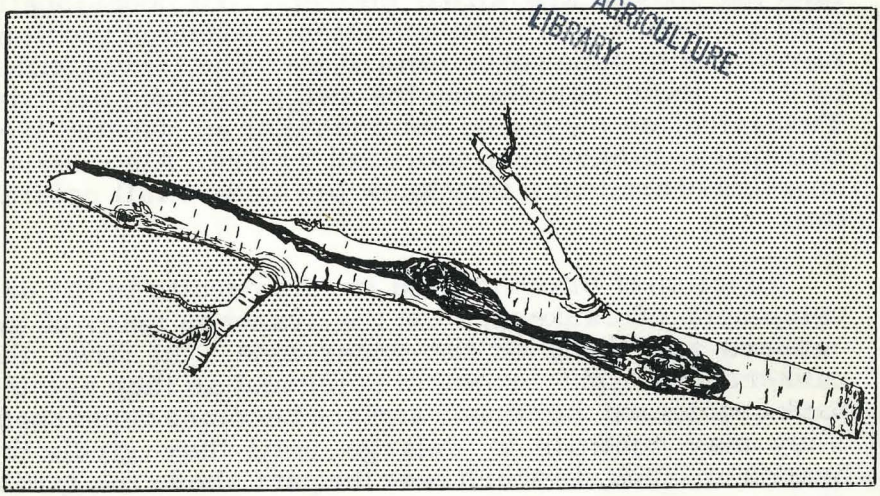

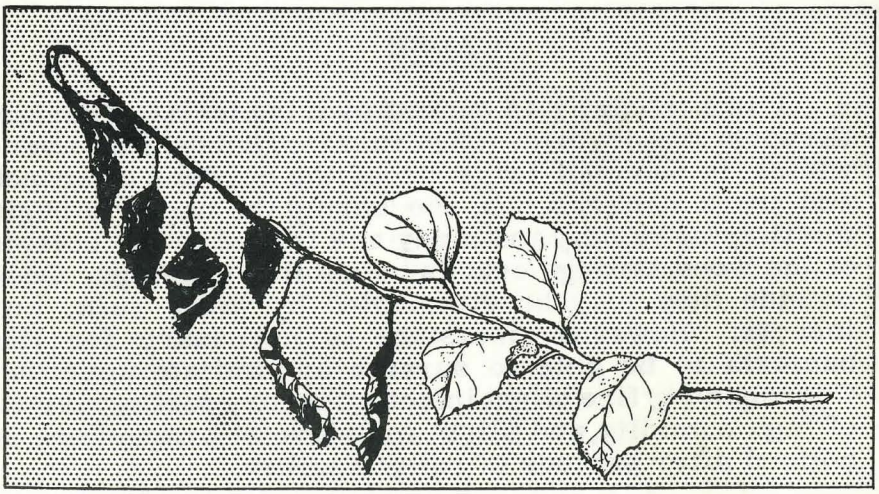

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U.S. DEPARTMENT OF AGRICULTURE
COOPERATING
W. V. LAMBERT, DIRECTOR

FIRE BLIGHT OF APPLES AND PEARS

John L. Weihing and Wayne C. Whitney [1]

SYMPTOMS

Fire blight may attack blossoms, fruits, leaves, twigs, branches and the trunks of apple and pear trees. Infected blossoms wilt, turn brown and die. Usually infected leaves are killed entirely, but occasionally only a portion will show infection. Affected portions turn various shades of brown and die. The leaves killed by fire blight remain on the twigs for long periods. Twig infection may be so common that an affected tree will appear to have been scorched by fire. Also, leaves on affected branches may show premature fall coloration.

Infection of branches and trunks results in the development of cankers. On the branches many of the cankers are found on the under side. At first the cankers are light brown in color and as they age the bark cracks and the canker surface becomes depressed. They may continue to enlarge until they girdle the branch or trunk, in which case the part above the girdle dies.

CAUSE

Fire blight is caused by a bacterial organism (Erwinia amylovora). The causal organism may overwinter in infected twigs or at the borders of branch and trunk cankers. In the spring the bacteria begin multiplying rapidly and many are forced to the outside of the wood through cracks or natural openings. Once outside they may be distributed by wind, rain, and insects. However, moisture is necessary for the bacteria to be able to survive and initiate infection. Consequently fire blight infection occurs during periods of high humidity, and blight in epidemic proportions is noticed after periods of rainy weather.

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[1] Extension Plant Pathologist and Extension Horticulturist, respectively.

CONTROL

Past recommendations for control of fire blight have been eradication of diseased wood, and the planting of resistant varieties. Rapidly growing twigs which have been stimulated by excessive fertility or heavy pruning are extremely susceptible to fire blight. It is advisable, therefore, to retard excessive twig growth by reducing the amount of nitrogenous fertilizer applications, and very light pruning. Sod culture also tends to reduce over-vigorous growth.

Since the fire blight bacteria overwinter in the cankers and possibly in the small twigs, it is advisable to remove and destroy infected parts when the tree is dormant. When removing a diseased branch the cut should be made 4 to 5 inches below any visible signs of the disease. Where a main branch is diseased, cut back to a strong, horizontal, outward-growing branch. The wounds should be painted with a standard wound dressing such as Bordeaux paint, asphaltum, lead paint, or pruning compound.

Cankers on main limbs or on the trunk can be removed by surgical methods. The cut in the bark should be made about 2 inches outside of the margin of the canker and all of the diseased bark removed. The instruments used for removal of a canker should be dipped in a disinfectant such as alcohol or chlorox before going to another canker. The wounds should be treated with a standard wound dressing.

Recent studies have shown that good fire blight control can be obtained by spraying trees during early bloom, full bloom, and petal fall with some of the antibiotic materials used in human medicine, principally streptomycin and terramycin. Commercial antibiotic preparations for orchard use will be available in the near future. Instructions regarding their use will be on or in the containers. Spraying for fire blight control is relatively new and is a big advancement in the control of this disease.

RESISTANT AND SUSCEPTIBLE VARIETIES

Apple and pear varieties differ in their susceptibility to fire blight. Following is a list of the more widely grown varieties of apples and pears classified according to their degree of susceptibility.

Apple Varieties	Pear Varieties
Highly Susceptible	
Jonathan	Bartlett
Minjon	Clapp's Favorite
Secor	Flemish Beauty
Yellow Transparent	Patten
Susceptible	
Beacon	Garber
Cortland	Douglas
Prairie Spy	
Wealthy	
Resistant	
Duchess	Seckel
Early McIntosh	Kieffer
Grimes	
Golden Delicious	
Haralson	
King David	
Missouri Pippin	
Turley	
Sharon	
Highly Resistant	
Delicious	
Northwestern Greening	
Winesap	