

Fire Blight a Disease that can kill Apple and Pear Trees

Have you noticed these symptoms on your home garden apple and/or pear trees? If so there is a good chance that it is either caused by the bacterial disease fire blight or by one of several fungal diseases called cankers. Fire blight is of major concern to commercial apple and pear growers because this disease can spread rapidly through an orchard, resulting in crop and tree losses. Canker diseases are of less concern because they spread at a much slower rate and tend to be less destructive. Fire blight is a relatively new disease in Nova Scotia and was of little concern prior to 2000. Fire blight is known to affect over 130 plant species, however, it is most often seen on apple, crab-apple, pear, quince, cotoneaster, mountain ash and Spirea. Under the right weather conditions and stage of tree growth fire blight can spread like a fire through trees and orchards. Left unchecked it can eventually kill the trees.



The bacterium is present at the start of bloom and is spread throughout the orchard by insect activity. Pollinating insects (like bees) can spread the bacteria from flower to flower where it multiplies under warm weather conditions. The bacteria enter the flowers during a wetting event such as a shower, rain, mist or heavy dew. Once entering the flower it will spread into the limb and form a canker (area of dead bark). Bacterial ooze is developed at this site and contributes to the further spread of the disease throughout the tree and to neighbouring trees by insect activity and driving rain events. The disease continues to spread throughout the growing season; however, it slows with the end of tree growth and cooler temperatures. The disease lays dormant in the cankers during the winter months becoming active again in the spring just prior to bloom (late May).

What to look for:

The symptoms of fire blight vary according to the part of the tree attacked.

- Infection of blossoms appears as blackened/shriveled blossom clusters.
- Shoot infections are characterized by the shepherd's crook appearance of the shoot. Droplets of milky white or rust coloured ooze may be present on the shoot.
- Smooth edged cankers (sunken area of dead bark) may appear on branches, trunk or rootstock.



Blossom Blight



Shoot Infection



Canker

Factors that contribute to the spread of this disease:

- Apple and pear cultivars vary in their degree of susceptibility to this disease (Table 1).

- Over fertilizing and excessive dormant pruning (February-April) can result in excessive shoot growth which is more prone to infections.
- Failure to remove fire blight canker during dormant pruning and or infected shoots during the growing season.
- Lack of control of insects with piercing, sucking mouth parts (eg. aphids, leafhopper and plant bugs) can spread the disease within a tree, from tree to tree and orchard to orchard.

Options for control:

The home gardener primarily has two options for the control of fire blight on existing apple and pear trees. The most drastic is the removal of infected trees, for which your neighbouring orchardist will gratefully thank you. The second option is to prune out infections as soon as they become visible and to follow up with removal of cankers and infected limbs during the dormant pruning period (February-April).

Improper removal on infected shoots during the active growing season can further spread the disease therefore the following steps should be followed

1. Remove shoots as soon as they are found, but only do this when the leaves and/or trees are dry! If they are wet, you could spread the bacteria in the tree.
2. When removing a shoot or limb make the pruning cut at least 30-40 cm toward the trunk from the visibly diseased part.
3. Avoid dragging the infected shoot through the tree.
4. Place infected shoots in the green bin or burn.

When planting new apple or pear trees, select a cultivar that is the least susceptible to fire blight infections (Table 1).

Table 1 Susceptibility of Apple and Pear Trees to Fire Blight				
Highly Susceptible	Moderately Susceptible		Least Susceptible	
Apple				
Gala	Cortland	Nova Easygro	Enterprise	Redfree
Golden Russet	Empire	Nova Mac	Freedom	
Ginger Gold	Golden Delicious	Spartan	Liberty	
Gravenstein	Honeycrisp		Macfree	
Jonagold	Jerseymac		Northern Spy	
Paula Red	McIntosh		Red Delicious	
Pear				
Anjou	Kiefer		Harrow Crisp	
Bartlett	Magness		Harrow Delight	
Bosc	Moonglow		Harrow Gold	
Clapp's Favorite	Seckle		Harrow Sweet	
Flemish Beauty	Spartlett		Harvest Queen	

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