



ATTS Group

Fireblight

By Toso Bozic

Fireblight is a destructive bacterial disease caused by the pathogen *Erwinia amylovora*. This bacterial disease widely affects plants in the Rosaceae family, including apples, pears, variety of cherries, chokecherry, Saskatoon berry, raspberries, black berries, hawthorn, cotoneaster, and mountain ash. Fireblight, caused by *Erwinia amylovora*, remains a significant threat to fruit production worldwide.

Spread

Overwintering bacteria emerge from cankers and spread to blossoms via insects or rain splash. The infection process begins when bacterial disease enters the plant through natural openings such as stomata, wounds caused by sucking/chewing/boring insects, hail, or unsterilized pruning tools. It infects trees through blossoms, leaves, or wounds in the stems or trunk. Warm temperatures (24-28° C) and high humidity favor the infection and development of the disease. Due to the high incidence of wounding and generally moist conditions, fireblight can become very severe following hailstorms. The bacteria overwinter in cankers on stem and trunk tissue and spread in the following spring and summer.

Symptoms

Infected flowers initially display a water-soaked appearance, wilting then droop before turning black or dark brown as if it scorched by fire. Infections typically start in the flowers, with the pathogen subsequently spreading to the shoots and leaves. Infected leaves and shoots darken to a brown or black hue, and the tips of the shoots curl downward, forming the distinctive "shepherd's crook" shape. The blackened/browned dead leaves and flowers remain attached, giving a scorched appearance (***name fireblight***) to the tree. On mature woody tissue, symptoms may include sunken, discolored areas, cracks, or bark splitting and peeling. Eventually, a watery ooze often exudes from the infected tissues. Symptoms vary depending on the part of the plant affected:

1. **Blossom blight:** One of the earliest signs of infection. Infected blossoms wilt, turn brown or black, and die.
2. **Shoot blight:** Infected shoots exhibit a characteristic *shepherd's crook appearance*, where the tip bends over. The shoots become water-soaked, then shrivel and blacken.
3. **Canker formation(bark):** Cankers form on branches, often appearing as sunken, dark areas. These cankers can girdle branches, leading to dieback.
4. **Fruit infection:** Infected fruit may ooze bacterial exudate and exhibit a mottled appearance. They often shrivel and remain attached to the tree.
5. **Leaf blight:** Leaves may become water-soaked, wilt, and turn brown or black, though they typically remain attached to the tree.



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Picture 1. Darken bark on apple tree (L) scorched and wilted tissue on Mountain Ash (C) wilting and flagging on apple tree (R)

Management and Control

Effective management of fireblight involves an integrated approach combining cultural, chemical, and biological control methods. There are few management options for the control of the fireblight:

- Accurate identification of fireblight through [laboratory testing](#) is essential for proper management
- Treat the first symptoms as soon as possible. Regularly inspect trees for early signs of infection, such as sudden wilting, browning of leaves, developing shepherd's crook, exudation.
- Pruning and removing infected plant at least 25 cm into healthy woody material during dormancy. Burn or dispose of pruned branches away from healthy trees.
- Proper spacing of plants to enhance air circulation can also help minimize humidity around plants
- Copper-based bactericides can be effective, especially when applied during bloom.
- Sterilize pruning tools between cuts to prevent cross-contamination. Do proper pruning and do not leave pruning stubs.

For more information:

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