
# Fire Blight Management

## Integrated Pest Management Factsheet #2 V1.0 Aug 2025


### Summary

Fire blight was newly detected on PEI in 2025 - all apple producers must stay vigilant and scout regularly. It is a bacterial disease that can cause rapid economic losses in apple orchards. Early detection through regular scouting and prompt removal of infected material are the most critical management practices. Multiple integrated pest management tools are available, including resistant varieties, cultural controls, and targeted chemical applications.


### What is Fire Blight?

Fire blight (*Erwinia amylovora*) is a bacterial disease infecting apple and other pome fruits. It has several hosts in the rose family including crabapple, mountain ash, and hawthorn. The disease progresses rapidly and can quickly cause economic losses to trees and fruit.

Fire blight bacteria primarily overwinter as ooze at the edges of cankers on wood. Bacteria multiply in the spring as temperatures warm and moved by wind, rain, insect activity, and equipment such as pruners. To cause an infection, fire blight bacteria require a moist environment that allows them to be transported into entry points such as blossoms or wounds caused by insect feeding, wind, hail, or sandblasting.

***Figure 1.*** *Example of blossom blight infection. H. Faubert, University of Massachusetts Amherst*

### Fire Blight Symptoms and Signs

Fire blight bacteria can infect flowers, shoots, fruits, and woody tissues. Infections, or strikes, are named after the part of the plant that is infected. Blossom blight symptoms appear when bacteria are transported by water into a flower, serving as primary infections. Symptoms begin as water-soaked petals and then progress to a brown/black coloration several weeks after bloom (Figure 1). Bacteria travel to active growing shoot tips and developing fruits, causing secondary infections (Figure 2). Shoot blight mostly occurs in new first year growth. Once a shoot tip is infected, the disease moves down the branch, wilting leaf tissues. These tissues become brown to black and the shoot tips curl downward, creating a characteristic ‘shepherd’s crook’ (Figure 3). Yellow-brown bacterial ooze can be seen on cankers (Figure 4), and infected blossoms, shoots, and fruit.

**Cutting out fire blight:**

- Remove cankers when trees are dormant
- Cut out active infections when 2 days of dry weather are in the forecast
- Make clean cuts, do not break off branches
- Use extra caution with young trees. Infections can move quickly through the tree
- Cut a minimum of 12-18 inches below symptoms, into healthy tissue

### Monitoring and Forecasting

Fire blight has historically been documented but not widely spread on PEI, and there have **been new detections** in 2025. Producers should be vigilant. Trees should be **scouted** when dormant for overwintering cankers. Orchards should be scouted at least weekly in spring for missed cankers and infected blossoms. **Scouting** for shoot blight should continue in the summer and throughout the entire growing season.

Because of the nature of fire blight, action should be taken **as soon** as it is found. If fire blight is suspected in your orchard, contact local government extension specialists and drop off a sample to be tested by a qualified laboratory.

Forecasting tools, such as PomeBlight (Perennia, 2024), have been validated for the Maritimes to assist producers in making decisions on when to apply fire blight protectants. The risk of an infection event is greatest when blossoms are present, there is a wetting period (rain, dew) that can transport bacteria into a flower, there has been sufficient warm weather, and there is inoculum present.

***Figure 2.*** *Shoot blight infection. Dr. Shuanglong Huang, PEI Department of Agriculture.*

Several integrated pest management (IPM) tools can be used to manage fire blight in an effective, economical, and environmentally conscious manner. For more information on IPM, see the first factsheet in this series.

### Cultural Controls

Several cultural controls can prevent the introduction and spread of fire blight. The **primary** management tool for fire blight is the removal of infected material. Dormant cankers should be removed to eliminate inoculum for the following season. In season, blossom and shoot blight should be removed in dry weather as it is found with clean pruners. Best practice is to disinfect pruners with 10% bleach or 70% alcohol between cuts but may not be necessary if cuts are made into healthy tissue well below symptoms. **Avoid** touching trees with branches when moving them and leave the pruned branches in laneways to fully dry before removal. Large piles will slow tissue drying. Prune infections from young trees as soon as possible. Consider **marking trees** that had infections removed to revisit frequently when scouting for new infections.

Different apple rootstocks and cultivars have varying levels of susceptibility to fire blight. When establishing a new planting, choose fire blight **resistant** cultivars and rootstocks (Table 1). This will help prevent infection.

***Table 1.*** *Fire blight (Erwinia amylovora) susceptibility of common PEI apple cultivars and rootstocks. Adapted from Cornell University and Agriculture and Agri-Food Canada.*

| Material | Least Susceptible | Moderately Susceptible | Highly Susceptible |
|---|---|---|---|
| Apple | Red Delicious, Northern Spy, Liberty | Ambrosia, Gravenstein, Jersey Mac, Golden Delicious, Honeycrisp, McIntosh, Gravenstein, | Granny Smith, Yellow Transparent, Cortland, Gala, Ginger Gold, Golden Russet, Paula Red, Idared, Jonagold |
| Rootstock | M.7, B.9, and Cornell series | M.106 and M.111 | M.9 and M.26 |

**Avoid** practices that promote **excessive growth** of new tissues, as succulent plant material is most susceptible to fire blight. Only fertilize with nitrogen when tissue samples indicate a need, consider a split application of nitrogen, and avoid heavy winter pruning.

**Scout frequently** for sucking insects such as leafhoppers, aphids, and plant bugs as they can damage tissue, making trees susceptible to infection. Use IPM practices to control populations.


***Figure 3.*** *Fire blight symptoms on shoot, showing characteristic shepherd's crook. Ward Upham, Kansas State University, Bugwood.org*

An application of **a growth regulator** such as Apogee/Kudos (prohexadione calcium) can be used if infections are detected. This slows tissue growth, thus slowing the progression of active shoot blight infections, giving producers time to cut them out. It also slows the growth of new tissue, reducing susceptibility to new infections. This does not protect against blossom blight.

Other sanitary practices to prevent the movement of fire blight include: avoiding overhead irrigation, frequently sanitizing hands or changing gloves when scouting, disinfecting equipment, and travelling in blocks with known infections last.

### Physical Controls

Remove wild hosts from hedgerows if possible, since they can have cankers that act as a source of inoculum. Remove suckers on trees, if infected, they can be an entry point for rootstock blight.

## Biological Controls

**Biological fungicides** (and bactericides) are composed of beneficial microorganisms that can attack or outcompete pest pathogens. Biological products registered for the suppression of fire blight in apples include Serenade OPTI (QST 713 strain of dried *Bacillus subtilis*), LifeGuard (*Bacillus mycoides* isolate J), and Blossom Protect WG (*Aureobasidium pullulans*). Biological fungicides need to be re-applied after rain. They are not recommended for use in conventional orchards with high fire blight pressure.

### Sample collection for PEI Analytical Labs:

1. Obtain a fresh sample of live material with several examples ranging from healthy to infected tissue.
2. Include branch and leaf material if possible.
3. Place samples in plastic bags with a moist paper towel and air.
4. Keep samples cool and moist, protected from crushing, freezing and heat.
5. Label the sample, fill out the request form, and drop off the sample as soon as possible.

Drop samples at the PEI Analytical Labs or at an Access PEI location outside of Charlottetown

## Chemical Controls

Chemical controls refer to **registered pesticide control products**, including biological fungicides, elemental products such as copper, and antibiotics that are used to manage pests.

Copper fungicides should be used in spring to reduce the amount of bacteria in overwintering cankers and to protect new tissue from infection. Copper can cause russetting, so it should only be used until green tip stage.

**Antibiotics** such as Streptomycin 17 WP (streptomycin sulfate) and Kasumin 2L (kasugamycin) have a short window of activity, so should only be sprayed prior to periods of high infection risk or within 24 hours of a trauma event (hail, strong winds). Generally, they are effective if applied within 24-48 hours of an infection period and from 12-24 hours post-infection.

**Protect pollinators** by not spraying products at bloom or when pollinators are present and choosing low-risk products when possible. Rotate products with different modes of action (MoA) to reduce the chances of resistance development, particularly high-risk products such as antibiotics. **Always read the product label; it is a requirement by law.** Please visit the Health Canada Pesticide Label Search for the most up to date labels: https://pr-rp.hc-sc.gc.ca/ls-re/index-eng.php.

Multiple provincial funding streams can help support the purchase and implementation of IPM tools. To learn more about IPM and the provincial support provided, see the remaining integrated pest management series factsheets or contact Shauna Barry (Agri-Environmental Specialist) at slbarry@gov.pe.ca or (902) 314-0388.

***Figure 4.*** *Fire blight canker on a tree trunk, showing bacterial ooze. K. Cox, Cornell University.*

## References


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