

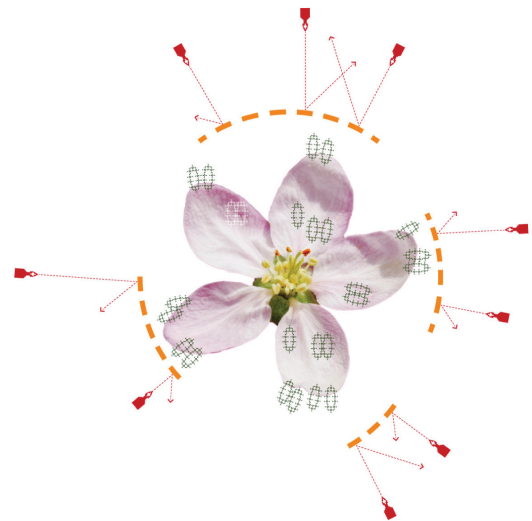
Technical Guide: Blossom Protect™

Effective protection against fire blight in pome fruit

Blossom Protect is a highly effective plant protection product used to prevent fire blight in pome fruit (apple, pear and quince). Fire blight, which is caused by the bacterium *Erwinia amylovora*, is one of the most damaging and pervasive diseases in pome fruit. This highly infectious bacterial disease typically attacks the tree through the blossoms during the flowering period and can rapidly damage whole trees and orchards if not preventatively protected.

Advantages

- Prevents bloom infection due to fire blight
- Ideal for use in Integrated Pest Management (IPM)
- Allowed for use in organic pome fruit production
- Highly effective alternative to antibiotics
- No development of pathogen resistance
- No pre-harvest interval
- No residues
- Safe for humans and animals
- Harmless to bees and beneficials
- Applied with standard equipment, bees are **not** a suitable application technique



Mode of action: Competition for Space and Nutrients

Blossom Protect contains highly competitive microorganisms which block the fire blight pathogen, *Erwinia amylovora*, from colonizing the blossoms. The biopesticide product works through natural competition for space and nutrients between pathogens and antagonists. Blossom Protect aggressively colonizes the blossom and the nectaries of the flower, blocking the site of fire blight infection. Blossom Protect acts as a competitive antagonist and does not directly attack the metabolism of the fire blight pathogen so there is no risk of developing resistance even with frequent applications.

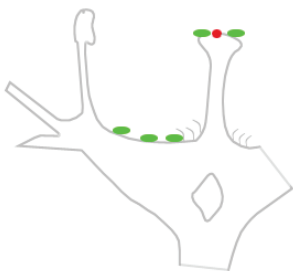


Image 1. The fire blight pathogen *Erwinia amylovora* (●) colonizes the stigma of open blossoms. Antagonistic microorganism (●) colonize the stigma, the nectary and the hypanthium. Further, Blossom Protect™ decreases the pH-value in the blossom.

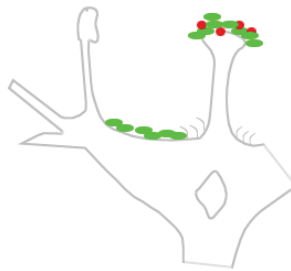


Image 2. In the unprotected blossom, the fire blight pathogen multiplies on the stigma. Blossom Protect™ blocks the development of the pathogen and colonizes the nectary and the hypanthium.

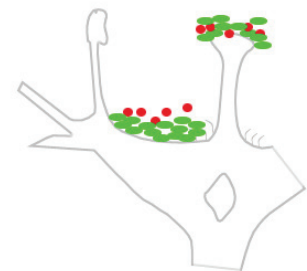


Image 3. Without protection, the fire blight pathogen infects the plant under humid conditions and an average daily temperature of >59°F. Blossom Protect™ prevents infection by blocking the fire blight pathogen.

Application Information

The efficacy of Blossom Protect is optimized when used in combination with Buffer Protect. Buffer Protect has been designed to work synergistically with Blossom Protect. Thorough coverage of the canopy is necessary for good control. **DO NOT rely on bees to inoculate flowers.**

Application Rate

Apply 1.25 lbs/acre of Blossom Protect along with 8.75 lbs/acre of Buffer Protect in 50-200 gallons of water per 1 acre. For low-volume spray, apply with agitation in 20 gallons of water/acre. Blossom Protect is packaged in a 2.5 lb container which will treat 2 acres.

Application Directions

When preparing the spray solution, start with large bag(s) of Buffer Protect first and add Blossom Protect, the active ingredient, last. In 50 to 200 gallons of water, add 8.75 lbs/acre of Buffer Protect and then 1.25 lbs/acre of Blossom Protect. Thorough coverage of the entire orchard is necessary for maximum protection. Alternate row spraying is not recommended.

Application Timing

If a forecast system, such as Cougar Blight or Maryblyt, is available: Apply Blossom Protect 1-2 days before an infection date (EIP, Epiphytic Infection Potential >70). If conditions for infection continue, repeat the application after two days. For optimum protection, use preventive applications at 10%, 40%, 70% and 90% open blossoms (BBCH 61-67 phenological stages).

For susceptible pome fruit varieties, the product may, in some seasons, enhance russetting when applied during late blossom. **Do not apply when fruit is present.**

Compatibility/Miscibility

Blossom Protect is compatible with numerous pesticides and fertilizers. For detailed information on compatibility, please refer to bio-ferm's website: <http://www.bio-ferm.com/en/products/blossom-protect/> Additional fungicides should be applied one day before, or two days after, Blossom Protect. In pears, keep a minimum interval of two days between applications of copper and Blossom Protect.

Further Information

Blossom Protect can be applied using standard equipment. Keep the water temperature below 86°F. The spray equipment and mixing tank must be properly cleaned prior to use. The suspension should be agitated during application. Use spraying suspension within 8 hours.

Blossom Protect Storage and Stability

- **KEEP REFRIGERATED FOR MAXIMUM SHELF LIFE. DO NOT FREEZE.**
- From date of manufacture, Blossom Protect can be stored 30 months at cold temperature (not to exceed 46°F), or 18 months at room temperature (not to exceed 68°F).
- Blossom Protect must be stored out of direct sunlight in a cool dry place.

Buffer Protect Storage and Stability

- Buffer Protect can be stored at room temperature below 96°F.

Always keep Blossom Protect and Buffer Protect out reach of children.

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