



Cornell University Cooperative Extension

2013 Guidelines for Fire Blight Management in New York

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BACKGROUND

Streptomycin-resistant strains of the fire blight bacterium, *Erwinia amylovora*, (SR Ea) were identified from 4 farms in Wayne and Ontario counties in late 2011. In 2012, SR Ea was detected (in mixed populations with sensitive Ea) on 7 more farms. Because of this, the following counties in NY, Wayne, Ontario, Monroe, Orleans, and Niagara are considered 'High Risk Areas' for streptomycin-resistant fire blight in 2013. In these 'High Risk Areas' streptomycin may provide less than adequate control of blossom infection. Prohexadione-Calcium (Apogee) should be effective against SR Ea shoot infections.

The 2012 season did not prove to be a disaster with heavy economic impact caused by fire blight and it is unlikely EPA would look favorably on an emergency use Section 18 for kasugamycin (trade name Kasumin), an effective alternative antibiotic to streptomycin. Kasugamycin is still in the pipeline for EPA Section 3 registration and it may be available in 2013. Kasugamycin would give excellent blossom blight control of SR Ea as well as regular fire blight. Guidelines are provided for control of fire blight without and with use of kasugamycin.

GUIDELINES FOR ALL AREAS

1. All fire blight cankers should be removed during winter pruning. Remove all trees with fire blight on the central leader or main trunk. Infected wood should be removed from the orchard.
2. Copper sprays should be applied at green tip.
3. CCE alerts and disease model forecasts for fire blight infection periods should be heeded, and suggested materials sprayed promptly.
4. When blossom infection is forecast, apply a tank mix of either
 - a. oxytetracycline* in combination with streptomycin at highest labeled rates,
 - b. or, the highest labeled rate of streptomycin in combination with a bloom time rate of a registered copper** product,
 - c. or, kasugamycin (Kasumin), if registered.
5. Prohexadione-Calcium (Apogee) applications for shoot blight should be seriously considered, especially on highly-susceptible varieties.
6. Fire blight strikes should be pruned out promptly and destroyed.
7. If severe blossom blight occurs regardless of the timing of a streptomycin application, contact CCE for SR Ea testing, listed under "Sample Submission" below.
8. If you need to interplant apple trees in existing orchards where fire blight was observed; wait until late fall, so the bloom on the new trees will be synchronized with the established trees.
9. If fire blight symptoms appear, collect samples for streptomycin resistance screening so you can plan your management program. Contact CCE for SR Ea testing, listed under "Sample Submission" below.
10. No quarantine will be imposed if SR Ea is found in your orchard.

*Oxytetracycline must be applied before infection occurs. Therefore, monitor fire blight forecasts and heed CCE alerts carefully when using oxytetracycline. Data from university field research trials suggest that different formulations of the same antibiotic active ingredient may perform differently in the field. Consult with specialist before choosing the product for your operation.

**Copper must be applied before infection occurs. Therefore, monitor fire blight forecasts and heed CCE alerts carefully when using copper. Copper may cause fruit russet. Hydrated lime may be used to soften copper. An example would be Badge SC at rate of 0.75 to 1.75 pints /acre buffered with 1-3 lbs. of hydrated lime for every 2 pints of Badge to minimize fruit finish damage.

ADDITIONAL CHEMICAL USE GUIDELINES FOR HIGH RISK AREAS (with confirmed SR Ea)

1. Follow general recommendations (above) *except for the following differences*.
2. Never apply streptomycin without another active ingredient effective against fire blight. To reiterate, when blossom infection is forecast, apply a tank mix of either
 - a. oxytetracycline* in combination with streptomycin at highest labeled rates,
 - b. or, the highest labeled rate of streptomycin in combination with a bloom time rate of a registered copper** product
 - c. or, kasugamycin (Kasumin), if registered.
3. Prohexadione-Calcium (Apogee) sprays should be applied at the highest labeled rate at 1-3 inches shoot growth. Apogee will not be effective if applied after you see fire blight symptoms.

GUIDELINES FOR ON-FARM NURSERY PRODUCTION

1. Collect budwood from orchards where fire blight is not established or from a neighboring farm without fire blight.
2. Limit streptomycin applications to 2-3 per season. These should be timed according to a disease forecast model prediction or CCE alert.
3. When fire blight pressure is high and shoots are actively growing, apply copper at the lowest labeled rate to prevent shoot blight.
4. Before conducting tree management tasks in nursery apply a copper product at the lowest labeled rate and observe the labeled REI.
5. When working in the nursery, field workers must wear clean clothing, and should wash hands and disinfect working tools often.
6. Any pinching, leaf twisting, should be done on dry sunny days with low relative humidity, after the REI of a copper application has expired.
7. If fire blight is found in the nursery, completely remove the infected trees including the root system, and place them in trash bags between rows. Subsequently, remove the culled trees from between the rows and discard them. Under no circumstances should unbagged infected trees be pulled between nursery rows when trees are wet, otherwise fire blight will be spread down the rows.
8. Control potato leafhoppers in nursery using a registered neonicotinoid product.
9. Maintain weed control through cultivation. Apply registered post-emergence herbicides using a shielded boom. There are some residual herbicides registered for use in nurseries.
10. When trees have reached the desired height, consider applying the lowest labeled rate of Apogee to slow growth and reduce susceptibility to shoot blight.
11. Manage nitrogen levels to balance tree growth and fire blight susceptibility.

RECOMMENDATIONS FOR NEW PLANTINGS (1-2 years)

1. If possible, plant varieties grafted on fire blight-resistant rootstocks.
2. Trees should be carefully examined for fire blight infections before planting. Infected trees should be discarded. Samples should be submitted for strep-resistance testing. Contact CCE for SR Ea testing, listed under "Sample Submission" below.
3. Immediately after planting, and 14 days later, a copper application should be made. Ensure that soil has settled to avoid phytotoxicity to roots.
4. Trees should be scouted at 7-day intervals for fire blight strikes until July 31st. Infected trees should be removed as described above. Plantings also need to be scouted 7-10 days after hail or

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severe summer storms. The NEWA disease forecasting model for fire blight newa.cornell.edu/index.php?page=apple-diseases can assist by providing an estimate of symptom emergence following a storm or other trauma event. Also scout the planting at the end of the season (mid-September).

5. If possible, remove flowers before they open. New plantings may have considerable numbers of flowers the first year, and blossom removal may not be practical. If practiced, the blossoms should be removed during dry weather and before there is a high risk of fire blight infection.
6. Trees should receive an application of copper at a stage equivalent to bloom. Observe the labeled REI before blossom removal.
7. To protect any remaining bloom, apply one of the following tank mix options:
 - a. the highest labeled rate of copper** prior to infection,
 - b. or, oxytetracycline* in combination with streptomycin at highest labeled rates,
 - c. or, the highest labeled rate of streptomycin in combination with a bloom time rate of a registered copper** product,
 - d. or, kasugamycin (Kasumin), if registered.
8. Samples of any infections observed after planting should be submitted for strep-resistance testing – see contact information below. Infected trees should be removed entirely in these high density orchards.

SAMPLE SUBMISSION INSTRUCTIONS

Collect samples from fire blight infected trees and strikes, and call or email one of the persons below to come and collect samples and take data on the situation.

Debbie Breth, Tel: 585-747-6039, email: dib1@cornell.edu

Juliet Carroll, Tel: 315-787-2430, email: jec3@cornell.edu

Kerik Cox, Tel: 315-787-2401, email: kdc33@cornell.edu

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