FIRE BLIGHT INFECTIONS OF SHOOTS (SHOOT BLIGHT) FOR SUSCEPTIBLE APPLE VARIETIES

General Information

Product Information

Apogee plant growth regulator is a unique production management tool for controlling vegetative growth in the following crops: apple, grass grown for seed, peanut, and sweet cherry.

Cleaning Spray Equipment

Spray equipment must be cleaned thoroughly before and after applying this product using a strong detergent or commercial sprayer cleaner, particularly if a product with potential to injure crops was used prior to Apogee.

Limitations, Restrictions, and Exceptions

Apple

Apogee reduces vegetative growth in apple orchards allowing a balance between canopy development and fruit production. Apogee provides many beneficial effects in apples including: reduced need for summer and dormant pruning, improved light penetration into the tree canopy, improved color of red varieties because of better light penetration into the canopy, and reduced incidence and severity of fire blight of shoots (shoot blight). Apogee has been associated with an increase in fruit cracking on apple varieties known to be prone to cracking (such as Empire and Stayman).
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Mode of Action

Apogee acts within apple trees to inhibit the biosynthesis of gibberellin, which is the natural plant hormone that regulates cell elongation. Inhibition of gibberellins results in reduced shoot growth. Vegetative growth suppression with Apogee typically lasts for 2 to 5 weeks per application during the current growing season. Apogee does not affect vegetative growth the following year.

Gibberellic Acids

When gibberellic acid sprays, such as ProVide Plant Growth Regulator, are applied in the same season as Apogee to reduce cracking or reduce russetting, a loss in efficacy can occur in the Apogee and/or the gibberellin spray.

Thinning

Apogee application can cause a tree to retain more fruit (refer to Table 2 for instructions to reduce June drop). As a result, thinning programs may need adjustment.

Fire Blight of Shoots (Shoot Blight)

Fire blight management is not registered for use in California on apple.

Controlling vegetative growth with Apogee as instructed in Table 3 will reduce the incidence and severity of fire blight infection (Erwinia amylovora) of shoots and leaves. Apogee does not have direct antibiotic activity against the fire blight bacteria (Erwinia amylovora), but Apogee can decrease host susceptibility. Apogee applications are not effective for suppression of blossom blight. For maximum reduction in fire blight susceptibility, apply Apogee at least 10 days before the
occurrence of weather conditions favorable for shoot and leaf infections. Apogee reduces the susceptibility of apple shoot tips to fire blight and must be used as one component of a comprehensive IPM strategy for control of fire blight. This decrease in susceptibility will not become effective until about 10 days after application.

Tree Row Volume (TRV)

Using Apogee plant growth regulator as part of a management program significantly reduces the tree row volume. Spray guides typically recommend using the tree row volume to determine the correct pesticide application rates. Growers are advised to contact their local cooperative extension service or consultant for additional information regarding tree row volume.

Application Instructions

Apply Apogee to actively growing trees with ground equipment at rates and stages listed in Tables 1-4. Apogee has been associated with an increase in fruit cracking on apple varieties known to be prone to cracking (such as Empire and Stayman).

Spray Coverage

Because Apogee is absorbed by the leaves, thorough spray coverage of the tree foliage is necessary for good uptake. Direct the spray to the portion of the tree where growth control is desired. To achieve good coverage, use sufficient water, proper spray pressure, nozzles, nozzle spacing, spray volume per acre, and tractor speed.

Consult the spray nozzle and accessory guide for information pertaining to proper equipment calibration.

Timing

For vegetative growth control, make the first Apogee application in the spring when trees have 1 to 3 inches of new shoot growth. Correct timing of application is critical to success. An early first application (i.e., 1 to 2 inches of shoot growth) is more effective than a later application (i.e., 6 to 8 inches of shoot growth). If additional vegetative growth control is needed, make a sequential application before or immediately after the shoots show signs of regrowth, typically 1 to 4 weeks after the first application.
Repeat applications as needed. Refer to Tables 1-3 for application rates and timings.

Number of Applications

The number of applications will vary depending on the timing of the first application, tree vigor, fruit load, pruning, variety, rootstock and/or the management history of the orchard. For apple orchards in locations with long growing seasons or higher vigor trees or trees with light fruit load, 3 to 5 applications per season can be more effective. The Apogee treatment schedule is flexible and can be applied in a number of different schedules depending on the objectives of the individual grower (see Tables 1-4). Consult with an extension specialist or consultant for your specific area.

Tree Vigor

Adjust the Apogee rate according to the vegetative vigor of the trees (see Tables 1-4). Vegetative vigor can be influenced by many factors, including fruit load, pruning, variety, rootstock, and location. A grower's experience is the best guide in predicting tree vigor. Some trees exhibit excessive shoot growth (high vigor) every year due to a trees that normally exhibit typical shoot growth can exhibit excessive growth in some years due to crop loss or severe winter pruning.

Tree Size

Calculate the Apogee rate per acre based on tree size. Base the application rate on the volume of water needed to spray the trees to drip (i.e., dilute spray or tree row volume).

Special Directions For Use for Vegetative Growth Control of Apples Grown in Idaho, Oregon, and Washington

Apply Apogee to actively growing trees according to the tree size, rates and application timings listed in Table 4. Take into consideration the size and vigor of the apple tree when determining the spray volume and application frequency, timing and rate required to achieve vegetative growth control. Spray volumes are based on the amount of solution required to thoroughly wet the tree foliage to the point of runoff. Consult your local extension agent or consultant for a recommendation on spray volume.
Aerial Application

Aerial application is not registered for use in California. Apply Apogee plant growth regulator in a minimum of 10 gallons of spray solution per broadcast acre. Aerial applications generally only provide spray coverage in the top part of the canopy and vegetative growth control will be limited to those areas that receive spray coverage.

Additives and Tank Mixing Information Adjuvant

Use a standard tree fruit spray adjuvant, preferably a nonionic surfactant, to improve leaf coverage and performance consistency. Follow the manufacturer’s rate instructions.

Nitrogen Source (if needed)

If the water source used for spray applications contains high levels of calcium carbonate (hard water), add one pound of ammonium sulfate (AMS) for every pound of Apogee. Use high quality spray grade AMS to avoid plugging nozzles.

Previous experience has shown that Apogee use by itself does not result in phytotoxicity and that Apogee is compatible with many fungicides and insecticides used in apple orchards. However, all varieties and cultivars have not been tested with possible tank mix combinations. Local conditions can also influence crop tolerance and may not match those under which BASF has conducted testing. Therefore, before using any tank mix, test the combination on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of applications. Tank mixes with calcium or boron sprays can result in less growth control from Apogee.

Restrictions and Limitations
- DO NOT apply more than 48 ozs (3 lbs) of Apogee within any 21-day interval.
- Rainfast period - Apogee is rainfast 8 hours after application.
- DO NOT apply to crops that show injury (leaf phytotoxicity) produced by prior pesticide applications, because this injury can be enhanced or prolonged. Refer to the Additives and Tank Mixing Information section for additional tank mixing instructions and precautions.
- DO NOT apply this product through any type of irrigation system.

TO REDUCE FIRE BLIGHT INFECTIONS OF SHOOT BY DECREASING VEGETATIVE GROWTH

Make a second application if new shoot growth occurs.

Refer to the Application Instructions section for rate calculations. Based on 300 gallons of dilute spray per acre.

Method
Broadcast/Foliar Air
Pre-Harvest Interval
45 days

Rates
field_rates 0
field_rates 1

Restricted Entry Interval
12 hours

Timings
When shoots have 1-3" of new shoot growth.