

POST HARVEST APPLICATIONS - BANANAS AND PLANTAINS

General Information

PRODUCT INFORMATION

Abound is a broad spectrum, preventative fungicide with systemic and curative properties for the control of many important plant diseases. Abound Flowable Fungicide is a member of Syngenta's Plant Performance™ product line and may also improve the yield and/or quality of the crop. These additional benefits are due to positive effects on plant physiology. The effects may vary according to factors including the crop, crop hybrid, or environment. Abound may be applied as a foliar spray in alternating spray programs or in tank mixes with other registered crop protection products. All applications must be made according to the use directions that follow.

PRODUCT USE INSTRUCTIONS

Application: Thorough coverage is necessary to provide good disease control. Make no more spray solution than is needed for application. Avoid spray overlap, as crop injury may occur.

Adjuvants: When an adjuvant is to be used with this product, the use of an adjuvant that meets the standards of the Chemical Producers and Distributors Association (CPDA) adjuvant certification is advised.

Efficacy: Under certain conditions conducive to extended infection periods, use another registered fungicide for additional applications if maximum amount of Abound has been used. If resistant isolates to Group 11 fungicides are present, efficacy can be reduced for certain diseases. The higher rates in the rate range and/or shorter spray intervals may be required under conditions of heavy infection pressure, with highly susceptible varieties, or when environmental conditions are conducive to disease.

INTEGRATED PEST (DISEASE) MANAGEMENT

Integrate Abound into an overall disease and pest management strategy whenever the use of a fungicide is required. Follow cultural practices known to reduce disease

development, including selection of varieties with disease tolerance, removal of plant debris in which inoculum overwinters, and proper timing and placement of irrigation. Consult your local agricultural authorities for additional IPM strategies established for your area. Abound may be used in State Agricultural Extension advisory (disease forecasting) programs which recommend application timing based on environmental factors favorable for disease development.

Crop Tolerance: Plant tolerance has been found to be acceptable for all crops on the label, however, not all possible tank-mix combinations have been tested under all conditions. When possible, test the combinations on a small portion of the crop to ensure that a phytotoxic response will not occur as a result of application. See Product Use Precautions for apple phytotoxicity information.

RESISTANCE MANAGEMENT

Abound contains Azoxystrobin, a Group 11 fungicide. Any fungal population may contain individuals naturally resistant to Azoxystrobin and other Group 11 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly on the same fields. Appropriate resistance-management strategies should be followed. Conform to resistance management strategies established for the crop and use area when using this product. Consult your local or State agricultural authorities for resistance management strategies that are complementary to those in this label.

Syngenta encourages responsible resistance management to ensure effective long-term control of the fungal diseases on this label.

Follow the crop specific resistance management specifications in the directions for use.

To delay fungicide resistance, take one or more of the following steps:

- Rotate the use of Azoxystrobin or other Group 11 fungicides (strobilurins, including pyraclostrobin and trifloxystrobin) within a growing season sequence with different fungicide groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and

which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.

- Where possible, make use of predictive disease models to effectively time fungicide applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Syngenta representatives at 1-800-334-9481 or visit the Fungicide Resistance Action Committee (FRAC) on the web at www.frac.info. You can also contact your pesticide distributor or university extension specialist to report resistance.

If there are no resistance management directions on the number of applications in the directions for use, then follow the directions in the table in the label.

In situations requiring multiple sprays, develop season long spray programs for Group 11 (QoI) fungicides. In crops where two sequential Group 11 fungicide applications are made, alternate with two or more applications of a fungicide that is not in Group 11. If more than 12 applications are made, observe the following guidelines:

- When using a QoI fungicide as a solo product, the number of applications must be no more than 1/3 (33%) of the total number of fungicide applications per season.
- For QoI mixes in programs in which tank mixes or premixes of QoI with mixing partners of a different mode of action are utilized, the number of QoI containing applications must be no more than 1/2 (50%) of the total number of fungicide applications per season.
- In programs in which applications of QoI are made with both solo products and mixtures, the number of QoI containing applications must be no more than 1/2 (50%) of the total number of fungicide applications per season.

If a Group 11 fungicide is applied to the seed or soil, do not make another application with a Group 11 fungicide for at least 3 weeks.

Rotational Crop Restrictions

The following crops may be planted at the specified interval following application of Abound fungicide.

SOILBORNE/SEEDLING DISEASE CONTROL

For those crops that have specific use directions for soilborne disease control:

Abound can provide control of many soilborne diseases if applied early in the growing season. Specific applications for soilborne diseases include in-furrow applications and banded applications applied over the row, either shortly after plant emergence or during herbicide applications or cultivation. These applications will provide control of pre- or postemergence damping off and diseases that infect plants at the soil-plant interface.

The use of either type of application depends on the cultural practices in the region. In some locations, one type of application may provide better disease control than the other, depending on the timing of the disease epidemic. Seedling diseases are generally controlled by in-furrow applications while banded applications are more effective against soilborne diseases that develop later in the season. Consult your local expert to get some guidance regarding application type.

Under cool, wet conditions, crop injury from soil directed applications can occur.

BANDED

- Apply Abound prior to infection as a directed spray to the soil, using single or multiple nozzles, adjusted to provide thorough coverage of the lower stems and the soil surface surrounding the plants.
- Limit band width to 7 inches or less.
- Apply Abound at a rate of 0.40-0.80 fl oz product/1000 row feet (0.15-0.30 lb ai/A). For banded applications on 22-inch rows, the maximum application rate is 0.70 fl oz/1000 row feet (0.26 lb ai/A).
- These applications come into contact with the foliage and are counted as foliar applications when considering resistance management.
- They may be applied during cultivation or hilling operations to provide soil incorporation.

IN-FURROW

- Apply Abound as an in-furrow spray in 3-15 gallons of water at planting.
- Mount the spray nozzle so the spray is directed into the furrow just before the seeds are covered.
- Use the higher rate when the weather conditions are expected to be conducive for disease development, if the field has a history of Pythium problems, or if minimum/low till programs are in place.

DRIP

Refer to the Application Instructions Through Irrigation System section.

PRODUCT USE RESTRICTIONS

- DO NOT use Abound through airblast application equipment on grapes in the following townships and boroughs of Erie County, Pennsylvania: North East, Harborcreek, Lawrence Park, Erie, Presque Isle, Millcreek, Fairview, Girard and Springfield. This prohibition is intended to help eliminate phytotoxicity problems with apples observed in this geographic location.
- To help manage fungicide resistance, DO NOT use for commercial transplant production in the greenhouse except where specified on the label.

PHYTOTOXICITY

Abound is extremely phytotoxic to certain apple varieties.

AVOID SPRAY DRIFT. Extreme care must be used to prevent injury to apple trees (and apple fruit).

DO NOT spray Abound where spray drift may reach apple trees.

DO NOT use spray equipment which has been previously used to apply Abound to spray apple trees. Even trace amounts can cause unacceptable phytotoxicity to certain apple and crabapple varieties.

Do not apply when weather conditions favor drift from treated areas to non-target aquatic habitat.

SPRAY DRIFT MANAGEMENT

To avoid spray drift, do not apply when conditions favor drift beyond the target area. The interaction of many equipment and weather related factors determine the

potential for spray drift. AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR AND THE GROWER.

MANDATORY SPRAY DRIFT

Aerial Applications

- When applying aerially to crops, do not release spray at a height greater than 10 ft. above the crop canopy, unless a greater application height is necessary for pilot safety.
- When applying to crops via aerial application equipment, the spray boom must be mounted on the aircraft so as to minimize drift caused by wing tip or rotor blade vortices. The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
- When applying to crops via aerial application equipment, applicators must use 1/2 swath displacement upwind at the downwind edge of the field.
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- Do not apply when wind speeds exceed 10-15 miles per hour at the application site.
- Do not apply during temperature inversions.

Groundboom Applications

- When using ground application equipment, apply with nozzle height no more than 4 feet above the ground or crop canopy.
- Do not apply when wind speeds exceed 10-15 miles per hour at the application site.
- Do not apply during temperature inversions.

Azoxystrobin can affect non-target plant species outside the treatment area. To limit adverse effects to non-target plants, the applicator must avoid making applications when wind can facilitate off-site movement of azoxystrobin in the direction of areas such as forested areas, riparian areas, wetlands, and areas that serve as habitat for desirable and protected animal species.

APPLICATION INSTRUCTIONS THROUGH IRRIGATION SYSTEMS (CHEMIGATION)

Application Through Irrigation Systems (Chemigation)

- Use only on crops for which chemigation is specified on this label.
- Apply this product only through center pivot, solid set, hand move, or moving wheel irrigation systems. Do not apply this product through any other type of

irrigation system.

- Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.
- Apply in 0.1-0.25 inches/acre. Excessive water may reduce efficacy.
- If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts.
- DO NOT connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system, unless the pesticide label-prescribed safety devices for public water systems are in place.
- A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments when the need arises.

Spray Preparation: Thoroughly clean the chemical tank and injector system. Flush system with clean water.

Drip Irrigation: Abound may be applied through drip irrigation systems for soilborne disease control. Ensure that the soil has adequate moisture capacity prior to drip application.

Terminate drip irrigation at fungicide depletion from the main feed supply tank or after 6 hours from start, whichever is shorter. For maximum efficacy, delay subsequent irrigation (water only) for at least 24 hours following drip application.

Sprinkler Irrigation

- Apply this product through sprinkler irrigation systems including center pivot, lateral move, end tow, side [wheel] roll, traveler, big gun, solid set, or hand move irrigation systems.
- DO NOT apply this product through any other type of irrigation system except as specified on this label.
- Apply with center pivot or continuous-move equipment distributing 1/2 acre-inch or less during treatment.
- In general, use the least amount of water required for proper distribution and coverage.
- If stationary systems (solid set, handlines or wheel lines other than continuous-move) are used, inject this product into no more than the last 20-30 minutes of the set.
- DO NOT apply when winds are greater than 10-15 mph to avoid drift or wind skips.

- DO NOT apply when wind speed favors drift beyond the area intended for treatment.
- Plant injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform treated water.
- Thorough coverage of foliage is required for good control.
- Maintain good agitation during the entire application period.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts.

Operating Instructions

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water-source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoidoperated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments when the need arises.
8. DO NOT connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed

safety devices for public water systems are in place.

Center Pivot Irrigation Equipment

Notes: (1) Use only with drive systems which provide uniform water distribution. (2) Do not use end guns when chemigating Abound through center pivot systems because of non-uniform application.

- Determine the size of the area to be treated.
- Determine the time required to apply 1/8-1/2 inch of water over the area to be treated when the system and injection equipment are operated at normal pressures as specified by the equipment manufacturer. When applying Abound through irrigation equipment use the lowest obtainable water volume while maintaining uniform distribution. Run the system at 80-95% of the manufacturer's rated capacity.
- Using water, determine the injection pump output when operated at normal line pressure.
- Determine the amount of Abound required to treat the area covered by the irrigation system.
- Add the required amount of Abound and sufficient water to meet the injection time requirements to the solution tank.
- Make sure the system is fully charged with water before starting injection of the Abound solution. Time the injection to last at least as long as it takes to bring the system to full pressure.
- Maintain constant solution tank agitation during the injection period.
- Continue to operate the system until the Abound solution has cleared the sprinkler head.

Solid Set, Hand Move, and Moving Wheel Irrigation Equipment

- Determine the acreage covered by the sprinklers.
- Fill injector solution tank with water and adjust flow rate to use the contents over a 20 to 30-minute interval. When applying Abound through irrigation equipment use the lowest obtainable water volume while maintaining uniform distribution.
- Determine the amount of Abound required to treat the area covered by the irrigation system.
- Add the required amount of Abound into the same quantity of water used to calibrate the injection period.
- Operate the system at the same pressure and time interval established during the

calibration.

- Stop injection equipment after treatment is completed. Continue to operate the system until the Abound solution has cleared the last sprinkler head.

Specific Instructions for Public Water Systems

1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduced pressure zone, back-flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, discharge the water from the public water system into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Limitations, Restrictions, and Exceptions

POST HARVEST APPLICATIONS

BANANAS/PLANTAINS

Application Instructions

Apply Abound as a single application of a 200-400 ppm solution to achieve good coverage. The application may be made as a spray, dip or may be painted onto the cut ends of the bananas. Application of the 200 ppm rate is appropriate for short distance transportation (e.g., within the USA). When a longer time in transport is expected (export), use the 300-400 ppm rate. If alum (1% w/v) is added to the spray solution, stir the suspension frequently as sedimentation and flocculation may occur. Addition of a non-ionic surfactant (0.10% v/v) may improve the compatibility of this mixture.

For the Amount of Abound to Mix 100 Gallons for Post-Harvest Banana Applications see table in the label.

Specific Use Restrictions:

- 1) Do not make more than one application to bananas as post-harvest treatment.
- 2) Abound may be degraded by exposure to direct sunlight. Do not store treated fruit in direct sunlight.

Method

[Dip](#)

[Spray](#)

[Paint](#)

Rates

[field_rates 0](#)

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Restricted Entry Interval

4 hours

Timings

[Post-harvest](#)