

# **MELON AND SQUASH/CUCUMBER SUBGROUPS 9A AND 9B - SOILBORNE AND SEEDLING DISEASE CONTROL**

## General Information

### PRODUCT INFORMATION

TEPERA FUNGICIDE is a liquid concentrate product that contains fluoxastrobin and can be mixed directly with liquid fertilizer or water. The product provides control of the labeled diseases when use as directed on corn (field, sweet, and seed); low growing berry (subgroup 13-07G); melon and squash/cucumber subgroups 9A and 9B; leafy petiole vegetables (subgroup 4-B); peanut; potato and other specified tuberous and corm vegetables (subgroup 1C); rice; sorghum; soybean; fruiting vegetables (crop group 8); and wheat. The rate of application is specified according to disease pressure, timing of treatment and crop. Preventative applications will optimize disease control and plant health benefits.

UNDER CERTAIN CONDITIONS CONDUCIVE TO EXTENDED INFECTION PERIODS, ADDITIONAL FUNGICIDE APPLICATIONS BEYOND THE NUMBER ALLOWED BY THIS LABEL CAN ONLY BE USED IF ALTERNATING WITH ANOTHER FUNGICIDE REGISTERED FOR THE CROP/DISEASE WITH A DIFFERENT MODE OF ACTION.

### RESISTANCE MANAGEMENT

The active ingredient in TEPERA FUNGICIDE (fluoxastrobin) belongs to the strobilurin class of chemistry which exhibits no known cross-resistance to other fungicide chemical classes. Fluoxastrobin does exhibit cross-resistance to other QoI fungicides (FRAC Group 11 fungicides). Fungal pathogens are known to develop resistance to products with the same mode of action when used repeatedly. Because resistance development cannot be predicted, the use of this product should conform to resistance management strategies established for the crop and use area. Such strategies may include rotating and/or tank-mixing with products having different modes of action, or limiting the total number of applications per season. Arysta LifeScience North America, LLC ("Arysta") encourages responsible resistance management to ensure effective long-term control of the fungal diseases on this label.

Follow the specific crop recommendations that limit the total number of sprays on a crop and the required alternations with fungicides from other resistance management groups. In situations requiring multiple fungicide sprays, develop season-long spray programs for using Group 11 (QoI-containing) fungicides with the following guidelines.

1. When using a Group 11 fungicide as a solo product, the number of applications should be no more than one third of the total number of fungicide applications per season.
2. In programs in which tank mixes or pre-mixes of a Group 11 fungicide with a fungicide of another Group are utilized, the number of Group 11 fungicide applications should be no more than one half of the total number of fungicide applications per season.
3. In programs in which applications of Group 11 fungicides are made with both solo products and mixtures, the number of Group 11 fungicide applications should be no more than one half of the total number of fungicide applications per season.

## APPLICATION GUIDELINES

### Broadcast Ground Sprayers

TEPERA FUNGICIDE is designed for at plant, banded and foliar spray applications to be applied with liquid fertilizer or water and must be diluted before application. It can be applied infurrow with the seed, as a T-band (band over the open furrow), as a broadcast application, as a band over the row. It may also be applied by chemigation (see CHEMIGATION instructions).

Apply as a 5- to 7-inch band (T-band) over an open furrow, or in-furrow before the seed is covered. Apply in combination with a minimum of 3 gallons per acre of seed safe starter fertilizer or water. Higher carrier volumes will improve disease control. Rate per 1000 row feet is dependent on the crop row spacing. The rate of application is variable according to disease pressure, timing of treatments and field scouting. Use lower listed rates under light to moderate disease conditions, and higher listed rates under heavier disease pressure.

TEPERA FUNGICIDE can be mixed with commonly used liquid starter or pop-up fertilizers. Follow liquid fertilizer directions regarding seed safety and use guidelines. Conduct a preliminary jar test using the appropriate ratio of fertilizer and TEPERA FUNGICIDE (see COMPATIBILITY TESTING instructions). For best results, use

immediately after mixing.

#### Mixing Procedures

Shake well before using.

Fill the tank one-half full with the liquid fertilizer or water and begin spray tank agitation. Add the proper amount of TEPERA FUNGICIDE, and then add the rest of the fertilizer or water. Maintain agitation until the mixture has been applied.

Prepare no more spray mixture than is needed for the immediate operation. Thoroughly clean spray equipment before using this product. Do not let the spray mixture stand overnight in the spray tank. If this occurs agitate tank mixture prior to application.

#### AERIAL APPLICATION

##### RESTRICTION:

Aerial application of this product is prohibited in New York State.

Aerial applications of TEPERA FUNGICIDE must be made in minimum spray volumes of 2 gallons per acre (GPA) for corn, rice, sorghum, soybeans, and wheat; all other crops must be a minimum of 5 GPA. Avoid application under conditions when uniform coverage cannot be obtained or when excessive spray drift may occur. Do not apply directly to humans or animals. Aerial applications made to dense canopies may not provide sufficient coverage of lower leaves to provide proper pest control.

#### CHEMIGATION

Apply TEPERA FUNGICIDE only through [drip], overhead sprinkler type irrigation systems, including center pivot, microjet, wheel lines, lateral move, side roll, or overhead solid set irrigation systems.

##### RESTRICTION:

Do not apply TEPERA FUNGICIDE through any other type of irrigation system.

Drip Irrigation: TEPERA FUNGICIDE may be applied through drip irrigation systems for soilborne disease control. The soil should have 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, subsequent irrigation (water only) should be delayed for at least 24 hours following drip application.

#### DIRECTIONS FOR USE THROUGH SPRINKLER IRRIGATION SYSTEMS

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

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

#### SPRAY PREPARATION

Remove scale, pesticide residues, and other foreign matter from the chemical tank and entire injector system. Flush with clean water.

#### APPLICATION INSTRUCTIONS

First prepare a suspension of TEPERA FUNGICIDE in a mix tank. Fill tank with 1/2 to 3/4 the specified amount of water. Start mechanical or hydraulic agitation. Add the required amount of TEPERA FUNGICIDE and then the remaining volume of water. Then set sprinkler to deliver no more than 0.4 inch of water per acre. Start sprinkler and uniformly inject the suspension of TEPERA FUNGICIDE into the irrigation water line so as to deliver the desired rate per acre. The suspension of TEPERA FUNGICIDE should be injected with a positive displacement pump into the main line ahead of a right angle turn to ensure adequate mixing. If you have any other questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

NOTE: Avoid further field irrigation over the treated area for 24 hours after treating with TEPERA FUNGICIDE to prevent washing the chemical off the crop.

#### CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

1. 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. 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, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow 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.

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.

7. Do not apply when wind speed favors drift beyond the area intended for treatment.

#### DIRECTIONS FOR CHEMIGATION THROUGH SPRINKLER IRRIGATION SYSTEMS

1. Maintain continuous agitation in mix tank during mixing and application to assure a uniform suspension.

2. Greater accuracy in calibration and distribution will be achieved by injecting a larger volume of a more dilute solution per unit time.

3. 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.

4. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
5. The pesticide injection pipeline must also 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 shutdown.
6. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
7. 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.
8. 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.
9. Do not apply when wind speed favors drift beyond the area intended for treatment. If you are unsure of wind conditions, contact your local extension agent.
10. Do not apply when system connections or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop may result from non-uniform distribution of treated water.
11. 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 supervision of the responsible person, shall shut the system down and make necessary adjustments as needed.
12. 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.

## SPRAY DRIFT MANAGEMENT

### SENSITIVE AREAS

This pesticide must only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitats for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away

from the sensitive areas).

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulation.

1. The distance of the outer most nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Comply with all state regulations. The applicator must be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory Information.

#### AERIAL DRIFT REDUCTION ADVISORY

This section is advisory in nature and does not supersede the mandatory label requirements.

#### INFORMATION ON DROPLET SIZE

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see WIND, TEMPERATURE AND HUMIDITY, and TEMPERATURE INVERSIONS sections).

#### SOILBORNE/SEEDLING DISEASE CONTROL

For those crops that have specific use directions for soilborne/seedling diseases, TEPEERA FUNGICIDE can provide control of many seedling and soilborne diseases if applied early in the growing season. Specific applications for seedling and soilborne diseases include in-furrow applications or 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 post-emergence 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.

For banded applications, apply TEPERA FUNGICIDE 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. Band width must be limited to 7 inches or less. Apply TEPERA FUNGICIDE at a rate of 0.24-0.53 fl oz product/1,000 row feet (rate range is based on 30" row spacing for application rates of 4.2 - 9.2 fl oz / acre). 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.

For in-furrow applications, apply TEPERA FUNGICIDE as an in-furrow spray in 3 to 20 gallons of water at planting. Mount the spray nozzle so the spray is directed into the furrow just before the seed or seed pieces 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.

#### Limitations, Restrictions, and Exceptions

#### MELON AND SQUASH/CUCUMBER SUBGROUPS 9A AND 9B (At Plant and Foliar Application)

- Not approved for use in California.

#### Application Directions

- Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed.
- See IN-FURROW AND BANDING APPLICATION RATES table for corresponding use rate per 1000 row feet based on crop row spacing

#### RESTRICTIONS:

- Do not apply more than 12.6 fl oz of product (0.18 lb ai) per acre per single



application.

- Do not apply more than 0.72 lb ai of fluoxastrobin per acre per year (including in-furrow, banded, and foliar applications).
- Do not apply more than 4 applications of product per acre per year, with a minimum retreatment interval of 7 days between applications.
- Do not apply to subgroup 9A or 9B crops grown in a greenhouse.
- Do not apply product within 1 day of harvest.
- Do not tank mix product with EC-based insecticides, or the following products, as this may increase the risk of crop injury under certain environmental conditions: malathion, Lannate, Lorsban, M-Pede or Botran, as crop injury may occur.

Method

[Band application](#)

[Foliar application](#)

[In-furrow](#)

Pre-Harvest Interval

1 day

Rates

[field rates 0](#)

[field rates 1](#)

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Restricted Entry Interval

12 hours

Timings

[At-Plant](#)