

# **HOPS DRIED CONES: DISEASE CONTROL - POWDERY MILDEW**

## General Information

### PRODUCT INFORMATION

LUNA SENSATION is a broad-spectrum fungicide with preventative, systemic, and curative properties labeled for the control or suppression of certain crop diseases.x

### LABELED USES

Almond; Artichoke, globe; Berry, low growing, except cranberry, subgroup 13-07G; Brassica, head and stem, subgroup 5A; Brassica, leafy greens, subgroup 5B; Carrot; Cherry subgroup 12-12A; Dill Seed; Fruit, citrus, group 10-10; Fruit, pome, group 11-10; Fruit, small vine climbing, except fuzzy kiwifruit, subgroup 13-07F; Ginseng; Herb subgroup 19A; Hops, dried cones; Leafy greens subgroup 4A (except Watercress); Leaf petioles subgroup 4B; Melon subgroup 9A; Nut, tree, group 14-12; Peach subgroup 12-12B; Pecan; Pepper/eggplant subgroup 8-10B; Pistachio; Plum subgroup 12-12C; Squash/Cucumber subgroup 9B; Tomato subgroup 8-10A; Vegetable, root, except sugar beet, subgroup 1B.

### RESISTANCE MANAGEMENT

The active ingredients in LUNA SENSATION belong to two different fungicide groups, the pyridinyl-ethyl-benzamides (Group 7) and the QoI or strobilurins (Group 11). To maintain long-term effectiveness of this fungicide, follow the specific resistance management guidance listed at the bottom of each crop label. The following practices may delay the development of fungicide resistance.

1. Start spray programs early: Spray programs that begin before pathogens attack keep fungal populations low and reduce the likelihood of resistance. Consult your local extension specialist, certified crop advisor and/or manufacturer representative for recommendations on when to begin spray programs.
2. Alternate products: Use spray programs that include alternation of products from different fungicide groups. Group numbers are listed in a box at the top right of product labels.
3. Use at least the minimum labeled rate and do not extend spray intervals beyond label specifications: Use of rates below the minimum labeled rate can shorten the useful life of a fungicide. Furthermore, stretching application intervals too long may leave a crop unprotected, allowing the pathogen population to multiply, and

increasing the likelihood for resistance to develop.

4. IPM: Applications of fungicides should be integrated into an overall disease and pest management program. Cultural practices known to reduce disease development should be followed. Consult your local extension specialist, certified crop advisor and/ or manufacturer representative for additional IPM strategies established for your area. This product may be used in Agricultural Extension advisory (disease forecasting or risk assessment) programs, which recommend application timing based on environmental factors favorable for disease development.

#### APPLICATION INFORMATION

Use sufficient water volume to provide thorough and uniform coverage to obtain the most effective disease control. Do not make applications when conditions favor drift. Avoid spraying when windy, high temperature, drought, dusty, low relative humidity, or temperature inversion conditions exist.

##### Ground Application

For optimum disease control, apply in sufficient water to ensure thorough coverage of foliage, bloom, and fruit.

##### Aerial Application

For aerial application equipment, a minimum of 10 gallons of water per acre for tree crops and 2 gallons of water per acre for field and vegetable crops is required. Do not apply by aerial application in New York State.

##### Air-Blast Application

Air-assisted or air-blast sprayers move spray droplets into the crop canopy using a forced-air system. The fan should be set up to deliver only enough air volume to penetrate the canopy and provide good coverage. Adjust deflectors or other aiming devices to direct spray only to the target area. Equip sprayers with nozzles that provide accurate and uniform application.

##### Chemigation Application

Apply this product only through center pivot, motorized-lateral move, traveling gun, and solid set or portable (wheel move, side roll, end tow, or hand move) 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 non-uniform distribution of treated water. If you have questions about

calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. 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 should the need arise. LUNA SENSATION has not been sufficiently tested when applied through irrigation systems to assure consistent product performance for all labeled uses. The following application techniques are provided for user reference but do not constitute a warranty of fitness for application through sprinkler irrigation equipment.

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. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone (RPZ), back flow preventer, or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an alternative 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. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. 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. The systems 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. 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.

Do not apply when wind speed favors drift. Spray mixture in the chemical supply tank must be agitated at all times, otherwise settling and uneven application may occur. Apply pesticide continuously for the duration of the water application. For mixing instructions, please refer to directions in the “Spray mixing and compatibility” section.

This product may be used through two basic types of irrigation systems as outlined in Sections A and B below. 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 back flow. Determine which type of irrigation system is in place, then refer to the appropriate directions provided below for each type. See crops section on the label for required treatment rates and additional use information.

#### A. Center Pivot, Motorized-Lateral Move and Traveling Gun Irrigation Equipment

For injections of pesticides, these continuously moving systems must use a positive displacement injection pump of either diaphragm or piston type and be constructed of materials that are compatible with pesticides. They must also be capable of being fitted with a system interlock and capable of injection at pressures approximately 2-3 times those encountered within the irrigation water line. Venturi applicator units cannot be used on these systems. Thoroughly mix required amount of this product for acreage to be covered into same amount of water used during calibration and inject into system continuously for one revolution or run. Mixture in the chemical supply tank must be continuously agitated during the injection run. Shut off injection equipment after one revolution or run, but continue to operate irrigation system until this product has been cleared from the last sprinkler head. This product can be injected during the irrigation cycle or as a separate application.

#### B. Solid-Set, Portable (Wheel Move, Side Roll, End Tow, or Hand Move) Irrigation Equipment

With stationary systems, an effectively designed in-line Venturi applicator unit is preferred to support even and quick distribution. However, a positive-displacement pump can also be used. For solid set systems, determine acreage covered by sprinkler. Fill the tank of injection equipment with water and adjust flow to use contents over 30 to 45 minutes. Mix desired amount of this product for acreage to be covered with water so that the total mixture of this product plus water in the injection tank is equal to the quantity of water used during calibration. Provide

chemical supply tank agitation sufficient for mixing until chemigation is completed. Operate entire system at normal pressures recommended by the manufacturer of injection equipment used, for amount of time established during calibration.

#### SPRAY MIXING AND COMPATIBILITY

Begin with clean spray equipment and add one-half of the required amount of water to the spray or mixing tank and start agitation. Add the required quantity of fungicide and the tank-mix partner if applicable to the water and complete filling with water to the required total volume. Follow the recommendations of your State Cooperative Extension Service for tank-mixing with other products. In general, follow the order beginning first with water conditioners, water soluble packaging (wait for it to completely dissolve), wettable powders and water-dispersible granular products, liquid flowables and suspension concentrates, emulsifiable concentrates, and adjuvants last. Maintain agitation throughout spraying. Do not allow spray mixture to remain in the tank overnight, or for long periods during the day without agitation. When tank-mixing with other pesticides, observe the more restrictive label limitations and precautions.

LUNA SENSATION is physically compatible with most commonly used fungicide, herbicide, insecticide, and foliar nutrient products. However, the compatibility of LUNA SENSATION with all potential tank-mix partners has not been fully investigated. If tank mixing with other pesticides is desirable, conduct a jar test with the volumes and rates typically used in agricultural application. Using a small container of water, add the proportionate amounts of the products: wettable powders and water-dispersible granular products first, then liquid flowables, and emulsifiable concentrates last. After thoroughly mixing, let stand for at least 15 minutes. Look for signs of separation, globules, sludge, flakes, or other precipitates.

Physical compatibility is indicated if the combination remains mixed or can be remixed readily.

The crop safety of all potential tank-mixes with LUNA SENSATION has not been tested on all crops. Before applying any tank-mixture not specified on this label, safety to the target crop should be confirmed on a small portion of the crop to be treated to ensure an adverse response will not occur.

#### PRODUCT RESTRICTIONS AND LIMITATIONS

Do not apply more than the maximum yearly rate for each specific crop from any

combination of products containing FLUOPYRAM or TRIFLOXYSTROBIN.

Do not use tank mixes with horticultural oils in Pear due to potential for crop injury.

Do not apply where drift may reach Concord grapes or crop injury may occur.

Spray equipment should be rinsed after applying and before application of other products to Concord grapes or crop injury may occur.

#### ROTATIONAL CROP RESTRICTIONS

Areas treated with this product can be replanted immediately following harvest with any crop for which both a FLUOPYRAM and a TRIFLOXYSTROBIN tolerance exist. This includes:

Almond; Artichoke, globe; Berry, low growing, except cranberry, subgroup 13-07G; Brassica, Head and Stem, Subgroup 5A; Carrot; Cherry subgroup 12-12A; Fruit, citrus, group 10-10; Fruit, pome, group 11-10; Fruit, small vine climbing, except fuzzy kiwifruit, subgroup 13-07F; Ginseng; Grain, cereal, group 15 (except corn, buckwheat, rye and rice) which include: barley, millet (pearl and proso), oats, sorghum, teosinte, triticale, and wheat; Corn, field, grain; Corn, pop, grain; Corn, sweet (kernel plus cob with husks removed); Hop, dried cones; Leafy greens subgroup 4A; Leaf petioles subgroup 4B (except watercress); Melon subgroup 9A; Nut, tree, group 14-12; Peach subgroup 12-12B; Peanut; Pepper/eggplant subgroup 8-10B; Plum subgroup 12-12C; Squash/ cucumber subgroup 9B; Sugarbeet, roots; Tomato subgroup 8-10A; Vegetable, root, except sugarbeet, subgroup 1B; Vegetable, tuberous and corm, subgroup 1C.

The following crops can be planted into treated areas 30 days after the last application: Alfalfa; Buckwheat; Bushberry subgroup 13-07B; Caneberry subgroup 13-07A; Cottonseed subgroup 20C; Dill seed; Herb subgroup 19A; Leafy Greens, Subgroup 5B; Legume Vegetables (except cowpea and dried peas); Onion, bulb, subgroup 3-07A; Onion, green, subgroup 3-07B; Rye; Rapeseed subgroup 20A; Soybean; Sugarcane (in Region 3); Sunflower subgroup 20B.

Do not rotate to crops other than those listed above.

Limitations, Restrictions, and Exceptions

HOPS, DRIED CONES

Product Instructions

- Apply at the critical timings for disease control. Refer to University and/or extension guidelines for best application timings. Continue as needed on a 14-day interval.
- Make applications in sufficient water volume (just to the point of runoff). Thorough coverage is needed for disease control. Apply increasing product rate as plant size increases.

3.0 fl oz with 15 - 30 gals/acre

4.0 fl oz with 31 - 60 gals/acre

5.0 fl oz with 61 - 90 gals/acre

6.0 fl oz with 91 - 200 gals/acre

#### Restrictions:

- Do not apply more than 27.1 fl oz of LUNA SENSATION per acre per year.
- Regardless of formulation or method of application, do not apply more than 0.446 lbs fluopyram or 0.5 lbs trifloxystrobin per acre per year.
- Do not make more than 4 applications per year.
- Do not apply LUNA SENSATION within 14 days of harvest.
- To limit the potential for development of disease resistance to these fungicide classes, do not make more than 2 sequential applications of LUNA SENSATION or any Group 7 or Group 11 containing fungicide before rotating with a fungicide from a different Group.
- Do not replant treated areas within 30 days of the last application.
- Do not graze cover crops within the area treated.
- Do not harvest cover crops within the area treated for silage and hay.
- Do not apply using aerial application.
- Do not apply using low volume applicators.
- Do not apply through any type of irrigation system.

#### Method

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

#### Pre-Harvest Interval

14 days

#### Restricted Entry Interval

12 hours

Timings

Apply at the critical timings for disease control.