US00000000A (140619) LABMC SERENADE OPTI 6 POUND booklet US colors: cmyk 9/15/14

242 mm

117.5 mm

Department of Agriculture
STATE OF HAWAII

LICENSED

PERIOD 2015-2017 LIC. NO.

9529.254

BAYER

SERENADE® OPTI

A Wettable Powder Biofungicide

FOR AGRICULTURAL USE

ACTIVE INGREDIENT:
QST 713 strain of *Bacillus subtilis** **26.2%**
OTHER INGREDIENTS: **73.8%**
TOTAL: 100.0%

*Contains a minimum of 1.31 x 10^{10} cfu/g

EPA Reg. No. 264-1160 **EPA Est. No. 264-MEX-001**

KEEP OUT OF REACH OF CHILDREN

CAUTION

FOR ADDITIONAL PRECAUTIONARY STATEMENTS and DIRECTIONS FOR USE: See Inside Booklet.

For **MEDICAL** And **TRANSPORTATION** Emergencies **ONLY**
Call 24 Hours A Day 1-800-334-7577
For **PRODUCT USE** Information Call 1-866-99BAYER (1-866-992-2937)

USE OF PRODUCT INDICATES ACCEPTANCE OF "CONDITIONS FOR SALE AND WARRANTY"

Produced for:
Bayer CropScience LP
P.O. Box 12014, 2 T.W. Alexander Drive
Research Triangle Park, North Carolina 27709
SERENADE is a registered trademark of Bayer.
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Product of Mexico

OMRI LISTED For Organic Use

Can be Used for Organic Production

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FIRST AID

IF IN EYES:	• Hold eyes open and rinse slowly and gently with water for 15 - 20 minutes. • Remove contact lenses, if present after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin with plenty of water for 15 - 20 minutes. • Call a poison control center or doctor for further treatment advice.
In case of emergency call toll free the Bayer CropScience Emergency Response Telephone No. 1-800-334-7577. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment break-down.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

EMERGENCY INFORMATION

For emergencies such as leaks or spills, call 24-hour toll-free BAYER hotline at 1-800-334-7577.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation. For use only as described on this label. Not for isolation or deformulation. Do not culture.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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AGRICULTURAL USE REQUIREMENTS *(continued)*

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- coveralls
- waterproof gloves
- shoes plus socks

BASIC USE INFORMATION

SERENADE® OPTI is a broad spectrum, preventative product for the control or suppression of many important plant diseases. Apply SERENADE OPTI as a foliar spray alone, in alternating spray programs or in tank mixes with other registered crop protection products. Apply SERENADE OPTI as a soil drench alone or in tank mixes with other registered crop protection products. When conditions are conducive to heavy disease pressure, use SERENADE OPTI in a rotational program with other registered fungicides. Apply SERENADE OPTI with spray equipment commonly used for making ground or aerial applications and sprinkler/irrigation systems commonly used for chemigation. Heavy rainfall or irrigation shortly after application may require retreatment. SERENADE OPTI can be used for organic production.

INTEGRATED PEST MANAGEMENT (IPM)

Integrate SERENADE OPTI into an overall disease and pest management strategy whenever fungicide use is necessary. Follow practices known to reduce disease development. Consult local agricultural authorities for specific IPM strategies developed for your crop(s) and location.

Be sure use of this product conforms to resistance management strategies, which may include rotating and/or tank-mixing with other products with different modes of action.

USE RATE DETERMINATION

Carefully read and follow all label directions, use rates and restrictions. Application of SERENADE OPTI prior to or in the early stages of disease development provides the best control or suppression of the targeted plant disease. Use the stated maximum label rates and shorter spray intervals for conditions conducive to threatening or rapid disease development. For proper application, determine the number of acres to be treated, the label use rate and select appropriate gallonage to give good canopy penetration and coverage of plant parts to be protected. Prepare only the amount of spray solution required to treat the measured acreage. Accurate spray equipment calibration is essential prior to use.

PREHARVEST INTERVAL

SERENADE OPTI can be applied up to and including the day of harvest.

APPLICATION INSTRUCTIONS

GENERAL: Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator and the grower/treatment coordinator are responsible for considering all of these factors when making decisions. Where states have more stringent regulations, they should be observed. Note: This section is advisory in nature and does not supersede the mandatory label requirements.

GROUND: Be sure to maintain agitation during mixing and application to assure uniform product suspension. Thorough coverage of all foliage is essential for effective disease control. SERENADE OPTI can be applied in commonly used ground equipment, hose-end, pressurized, greenhouse and hand-held sprayers. To achieve good coverage, use proper spray pressure, gallonage per acre, nozzles, nozzle spacing and ground speed. Consult spray nozzle and accessory catalogues for specific information on proper equipment calibration.

AERIAL: This product can be applied by aerial application. Refer to the Aerial Drift Reduction Advisory Information section of this label for general directions and precautions. Use the application rate indicated for the appropriate crop in sufficient water to achieve thorough coverage, typically between 3 – 20 gallons of water per acre depending upon the crop. Three gallons of water per acre is the minimum.

CHEMIGATION: This product can be applied through sprinkler (center pivot, lateral move, end tow, side (wheel) roll, traveler, solid set, and hand move) or drip type irrigation systems. Refer to the Chemigation Directions for Use section of this label for general directions and precautions. Use the application rate indicated for the appropriate crop as specified in the Application Rate tables of this label.

MIXING INSTRUCTIONS

MIXING: SERENADE OPTI must be diluted with water. Partially fill the spray tank with clean water and begin agitation. Add the specified amount of SERENADE OPTI to the tank. Finish filling the tank to the necessary volume to obtain the proper spray concentration. It is critical that the spray solution be agitated during mixing and application to assure a uniform suspension. Do not allow spray mixture to stand overnight or for prolonged periods. Maintain a spray solution pH between 4.5 and 8.5.

SERENADE OPTI may be tank-mixed with other registered pesticides to enhance plant disease control. This product cannot be mixed with any product with a prohibition against such mixing. When tank-mixing SERENADE OPTI with other registered pesticides, always read and follow all use directions, restrictions, and precautions of both SERENADE OPTI and the tank-mix partner. Use of the resulting tank mix must be in accordance with the more restrictive label limitations and precautions. Do not exceed label dosage rates.

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COMPATIBILITY: Do not combine SERENADE OPTI in the spray tank with pesticides, surfactants or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective and non-injurious under your use conditions.

SERENADE OPTI is compatible with many commonly used pesticides, fertilizers, adjuvants and surfactants but has not been fully evaluated with all of these. To ensure compatibility of tank-mix combinations, evaluate them prior to use as follows: Using a suitable container, add proportional amounts of product to water. Add wettable powders first, followed by water dispersible granules, then by liquid flowables and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. 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 application.

ADDITIVES: SERENADE OPTI is compatible with a wide range of additives. Since the product is primarily a protectant, thorough coverage of all above-ground plant parts is required for effective product performance. To improve plant surface coverage, add a nonphytotoxic adjuvant to spray tank.

CHEMIGATION DIRECTIONS FOR USE

General Requirements:

1) Apply this product only through sprinkler (including center pivot, lateral move, end tow, side (wheel) roll, traveler, solid set or hand move) or drip type irrigation systems. Do not apply this product through any other type of irrigation system.
2) Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.
3) Ensure that the irrigation system used is properly calibrated and if you have questions, call the State Extension Service specialists, the equipment manufacturer or other experts.
4) 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.
5) 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 any necessary adjustments should the need arise.

Requirements for Chemigation Systems Connected to Public Water Systems:

1) Public water supply 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 25 individuals daily at least 60 days throughout the year.
2) Chemigation systems connected to the public water systems must contain a functional, reduced-pressure zone (RPZ), backflow preventer or the functional equivalent in the water supply 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 outlet end of the fill pipe and the top of the 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 towards 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 filled with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.
8) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
9) Do not combine SERENADE OPTI with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. SERENADE OPTI has not been fully evaluated for compatibility with all adjuvants or surfactants. Conduct a spray compatibility test if mixture with adjuvants or surfactants is planned.
10) Maintain agitation in the pesticide supply tank.
11) Apply SERENADE OPTI during the last half of the water application.
12) Dilute SERENADE OPTI in enough water to be able to draw through system for the last half of the water application.

Sprinkler Chemigation Requirements:

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 back flow.
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.

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3) 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 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) Do not apply when wind speed favors drift beyond the area intended for treatment.
8) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
9) Do not combine SERENADE OPTI with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. SERENADE OPTI has not been fully evaluated for compatibility with all adjuvants or surfactants. Conduct a spray compatibility test if mixture with adjuvants or surfactants is planned.

Center-pivot, Lateral Move, End Tow, and Traveler Irrigation Equipment (Use only with electric or oil hydraulic drive systems which provide a uniform water distribution):

- Determine size of area to be treated.
- Determine the time required to apply no more than 1/4 inch of water (6,750 gallons water per acre) over the area to be treated when the system and injection equipment are operated at normal pressures recommended by the equipment manufacturer. Run system at 80 to 95% of manufacturer's rated capacity.
- Using only water, determine the injection pump output when operated at normal line pressure.
- Determine the amount of SERENADE OPTI fungicide required to treat area.
- Add required amount of SERENADE OPTI fungicide and sufficient water to meet the injection time requirements of the solution tank.
- Maintain constant solution tank agitation during the injection period.
- Stop injection equipment after treatment is completed. Continue to operate the system until SERENADE OPTI fungicide solution has cleared the sprinkler head.

Solid-set, Side (wheel) Roll, and Hand Move Irrigation Equipment:

- Determine acreage covered by sprinkler.
- Fill injector solution tank with water and adjust flow rate to use contents over a 10- to 30-minute interval.
- Determine the amount of SERENADE OPTI fungicide required to treat area.
- Add the required amount of SERENADE OPTI fungicide into the same quantity of water used to calibrate the injection equipment.
- Maintain constant solution tank agitation during the injection period.
- Operate system at normal pressures recommended by the manufacturer of the injection equipment and used for the time interval established during calibration.
- Inject SERENADE OPTI fungicide at the end of the irrigation cycle or as a separate application to maximize foliar fungicide retention.
- Stop injection equipment after treatment is completed. Continue to operate the system until SERENADE OPTI fungicide solution has cleared the last sprinkler head.

Drip Chemigation Requirements:

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 back flow.
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, 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.
4) The system must contain functional inter-locking 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) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.

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8) Do not combine SERENADE OPTI with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. SERENADE OPTI has not been fully evaluated for compatibility with all adjuvants or surfactants. Conduct a spray compatibility test if mixture with adjuvants or surfactants is planned.

9) Maintain agitation in the pesticide supply tank.

10) Apply SERENADE OPTI during the last half of the water application.

11) Dilute SERENADE OPTI in enough water to be able to draw through system for the last half of the water application.

AERIAL DRIFT REDUCTION ADVISORY INFORMATION

General: Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed.

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).

CONTROLLING DROPLET SIZE: Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Pressure - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Number of Nozzles - Use the minimum number of nozzles that provide uniform coverage. Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM WIDTH: For aerial applications, the boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 3 – 10 mph as measured by an anemometer. Use medium or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or the crop canopy.

APPLICATION HEIGHT: Do not make application at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

SWATH ADJUSTMENT: When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

WIND: Drift potential is lowest between wind speeds of 3 - 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 3 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

TEMPERATURE INVERSIONS: Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SENSITIVE AREAS: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

IMPORTANT: READ CONDITIONS FOR SALE AND WARRANTY BEFORE USE

FOR USE AS A FOLIAR SPRAY ON SELECT AGRICULTURAL FIELD CROPS

SERENADE OPTI has a 0-Day PreHarvest Interval for all crops contained on this label.

Under moderate to severe disease pressure, for improved performance, increase rates and reduce spray intervals as stated or use SERENADE OPTI in a tank mix or rotational program with other registered fungicides.

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Application Rates of SERENADE OPTI for Selected Field Crops			
Crops	**Disease**	**Rate oz/acre**	**Application Instructions**
Artichoke	**Gray Mold** *Botrytis* spp.	14 - 20	Begin application when conditions are conducive to disease development. Repeat on 7- to 10-day intervals or as needed. SERENADE OPTI may be applied up to and including the day of harvest.
Asparagus	**Botrytis Blight** *Botrytis cinerea*	14 - 20	Begin application soon after emergence and when conditions are conducive to disease development. Repeat on 7- to 10-day intervals or as needed. SERENADE OPTI may be applied up to and including the day of harvest.
Berry Blueberries Blackberry Raspberry Loganberry Huckleberry Cranberry Gooseberry Elderberry Currant Caneberry Bushberry and other berry crops	**Mummy Berry** *Monilinia vaccinii-corymbosi* **Anthracnose Fruit Rot** *Colletotrichum gloeosporiodes* *Colletotrichum acutatum* **Botrytis Blight** *Botrytis cinerea* **Alternaria Fruit Rot** *Alternaria tenuissima* **Bacterial Canker*** *Pseudomonas* spp. ***Not For Use In California**	14 - 20	**Mummy Berry -** For suppression, begin application at the bud break stage of development and repeat on a 7- to 10-day interval or as needed. For improved performance, use SERENADE OPTI in a tank mix or rotational program with other registered fungicides for Mummy Berry control. **Bacterial Canker –** Apply before fall rains and again during dormancy before spring growth. Apply throughout the growing season prior to disease development and repeat on a 2- to 10-day interval or as needed. **Alternaria Fruit Rot and Anthracnose -** suppression– Begin application prior to disease development and repeat on a 2- to 10-day interval or as needed. For improved performance of SERENADE OPTI, add a surfactant to the spray tank to improve coverage. **Botrytis Blight –** Begin application prior to disease development and repeat on a 2- to 10-day interval or as needed. For improved performance of SERENADE OPTI, add a surfactant to the spray tank to improve coverage. **Cranberries –** Make application to non-flooded fields only. SERENADE OPTI may be applied to fruit up to and including the day of harvest.
Brassica Vegetables (Cole Crops) Broccoli Cabbage Cauliflower Brussels Sprouts Collards Kale Mustard Greens Kohlrabi and other brassica crops	**Alternaria Leaf Spot** *Alternaria* spp.	14 - 20	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat on a 3- to 10-day interval or as needed.

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Crops	Disease	Rate oz/acre	Application Instructions
Bulb Vegetables Onion Garlic Shallots and other bulb vegetables including those grown for seed production.	**Botrytis Neck Rot** *Botrytis* spp. **Botrytis Leaf Blight** *Botrytis squamosa* **Onion Purple Blotch** *Alternaria porri* **White Rot** *Sclerotium cepivorum*	14 - 20	Begin application when environmental conditions are conducive to disease development and repeat on a 7- to 10-day interval or as needed. Apply sufficient water to provide complete coverage of plants. When conditions are conducive to rapid disease development, use SERENADE OPTI in a rotational program with other registered fungicides
Citrus* Orange Grapefruit Lemon Tangerine Tangelo Pummelo and other citrus crops	**Greasy Spot*** *Mycosphaerella citri* **Post Bloom Fruit Drop*** *Colletotrichum Acutatum* **Melanose*** *Diaporthe citri* **Alternaria Leaf Spot*** *Alternaria alternate* ***Not For Use In California**	14 - 20	**Greasy Spot** - For suppression, begin applications at first new foliar flush, and repeat with subsequent new flushes. When conditions are conducive to rapid disease development, SERENADE OPTI may be used in a tank mix program with other registered products, such as spray oil or copper-based fungicides, at labeled rates. **Post Bloom Fruit Drop** – For suppression, begin applications at early bloom and when conditions are conducive to disease development. Repeat on a 7- to 10-day interval or as needed. Utilize the shorter spray interval between applications if warm, wet conditions persist. **Melanose** – For suppression, begin applications at petal fall and repeat on a 14- to 21-day interval until fruit becomes resistant. **Alternaria Leaf Spot** – Begin applications when environmental conditions and plant stage are conducive to disease development. Repeat on 7- to 10-day intervals or as needed. For improved performance on Post Bloom Fruit Drop and Melanose, use SERENADE OPTI in a tank mix or rotational program with other registered fungicides.
Fruiting Vegetables Pepper Tomato Eggplant Ground Cherry Tomatillo Okra and other fruiting vegetables	**Bacterial Spot*** *Xanthomonas* spp. **Target Spot*** *Corynespora Cassiicola* ***Not For Use In California**	14 - 20	Begin application soon after emergence or transplant and when environmental conditions are conducive to disease development. Continue applications on a 2- to 7-day interval or as needed. When conditions are conducive to rapid disease development, for improved control, use SERENADE OPTI in a tank mix program with copper-based bactericides registered for control of Bacterial Spot at labeled rates.

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Crops	Disease	Rate oz/acre	Application Instructions
Fruiting Vegetables *(continued)* Pepper Tomato Eggplant Ground Cherry Tomatillo Okra and other fruiting vegetables	**Bacterial Speck*** *Pseudomonas syringae* pv. *Tomato* ***Not For Use In California**	14 - 20	Begin application soon after emergence or transplant and when environmental conditions are conducive to disease development. Continue applications on a 2- to 7-day interval or as needed. Use the stated higher rates when conditions are conducive to rapid disease development.
	Early Blight *Alternaria solani* **Late Blight** *Phytophthora infestans*	14 - 20	For suppression, begin application when plants are 4 to 6 inches high. Repeat applications on a 5- to 7-day interval or as needed. For improved performance, use SERENADE OPTI in a tank mix or rotational program with other registered fungicides. Use the stated shorter spray intervals under conditions conducive to rapid disease development.
	Buck-eye Rot *Phytophthora parasitica* **Anthracnose** *Colletotrichum candidum*	14 - 20	Begin application soon after emergence or transplant and continue on a 7- to 10-day interval or as needed. For improved performance of SERENADE OPTI, add a surfactant to the spray tank to improve coverage.
	Gray Mold *Botrytis cinerea*	14 - 20	Begin application soon after emergence or transplant and repeat on a 7- to 10-day interval or as needed.
Grape	**Gray Mold** *Botrytis cinerea* **Sour Rot** a complex of pathogens *Aspergillus niger, Alternaria tenuis, Botrytis cinerea, Cladosporium herbarum, Rhizopus arrhizus, Penicillium* spp., and others	14 - 20	Begin application at bloom, before bunch closure, at verasion and preharvest. Apply in sufficient water to provide full coverage. SERENADE OPTI may be applied to fruit up to and including the day of harvest.
	Powdery Mildew *Uncinula necator*	14 - 20	Begin application when new shoots are ½ to 1½ inches long. Repeat when shoots are 3 to 5 inches long, when shoots are 8 to 10 inches long and then at 7- to 10-day intervals until disease conditions no longer exist. Use the stated higher rate and shorter interval when conditions are conducive to rapid disease development. Apply in sufficient water to provide thorough coverage.
	Phomopsis *Phomopsis viticola*	14 - 20	Begin applications when shoots are ½ to 1 inch long and repeat when shoots are 6-8 inches long.

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Crops	Disease	Rate oz/acre	Application Instructions
Herbs/ Spices	**Anthracnose** *Colletotrichum* spp. **Alternaria Leaf Blight** *Alternaria* spp. **Botrytis** *Botrytis* spp.	14 - 20	Begin application when environmental conditions are conducive to disease development. Repeat on 7- to 10-day intervals or as needed.
Leafy Vegetables Lettuce Celery Spinach Parsley Radicchio and other leafy vegetable crops including those grown for seed production	**Pink Rot** *Sclerotinia sclerotiorum*	14 - 20	Pink Rot – Begin application approximately 8 weeks before harvest and repeat on a 14-day interval. Apply SERENADE OPTI as a directed spray in sufficient water to ensure thorough coverage of the base of the plants and the surrounding soil surface. Light irrigation following application to incorporate SERENADE OPTI may improve disease control.
	Sclerotinia Head and Leaf Drop *Sclerotinia* spp.	14 - 20	For control of Sclerotinia Head and Leaf Drop: Apply as a directed spray with multiple nozzles per each seed line in sufficient water to ensure thorough coverage of lower plant leaves and surrounding soil surface within 7 days of thinning or transplanting. Repeat applications on 10- to 14-day intervals if conditions for disease development persist. Use the stated higher rates under conditions conducive to moderate to severe disease pressure. Light irrigation after application to incorporate the product may improve disease control.
Legumes/Vegetables (succulent and dried beans and peas) Beans Green beans Snap beans Shell beans Soybeans Dry Beans Garbanzo beans Lima beans Peas Chick peas Split peas Lentils and other legume/vegetable crops including those grown for seed production	**White Mold (Sclerotinia Stem Rot)** *Sclerotinia sclerotiorum* **Gray Mold (Botrytis Blight)** *Botrytis* spp.	14 - 20	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat on 7- to 10-day intervals or as needed. When conditions are conducive to rapid disease development, use SERENADE OPTI in a rotational program with other registered fungicides.

242 mm

117.5 mm

Crops	Disease	Rate oz/acre	Application Instructions
Oil Seed Crops Canola Castor Coconut Cotton Flax Oil Palm Olive Peanut Rapeseed Safflower Sesame Sunflower Soybeans and other oilseed crops including those grown for seed production	**White Mold** (**Sclerotinia Stem Rot**) *Sclerotinia sclerotiorum*	14 - 20	For suppression of White Mold, begin application soon after emergence and when conditions are conducive to disease development. Repeat on 7- to 10-day intervals or as needed. Use the stated higher rates and shorter application intervals under heavy disease pressure.
Peanut*	**White Mold*** *Sclerotinia sclerotiorum* ***Not For Use In California**	14 - 20	Begin application when environmental conditions are conducive to disease development. Repeat applications on 14-day intervals or as needed. Peanut hay may be fed to livestock.

242 mm

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Crops	Disease	Rate oz/acre	Application Instructions
Pome Fruit Apple Crabapple Pear Quince Mayhaw and other pome fruit	**Fire Blight** *Erwinia amylovora*	14 - 20	For disease suppression, begin application at 1 – 5% bloom and repeat as needed to protect open, untreated blossoms when conditions favoring disease development are likely to occur. For maximum effectiveness, use SERENADE OPTI prior to and as close as possible to Fire Blight infection events. During periods of rapid bloom development and frequent infection periods, use 2- to 7-day spray intervals. After petal fall, continue applications on a 7-day interval while environmental conditions favor disease development. Apply in sufficient water to provide full coverage. For improved performance, SERENADE OPTI may be used in a rotational program with antibiotics registered for Fire Blight control such as but not limited to oxytetracycline or streptomycin. Proper orchard cultural practices are essential to eliminate Fire Blight-infected tissue from the orchard to assure good performance of any crop protection product. Care must be taken to remove and destroy dead and diseased wood from the orchard prior to and during the growing season. Use of SERENADE OPTI alone has not been shown to affect fruit finish. Use caution when selecting spray adjuvants. Select only those adjuvants which through prior experience do not affect fruit finish when combined with SERENADE OPTI.
	Brooks Spot* *Mycosphaerella pomi* **Cedar Apple Rust*** *Gymnosporangium juniperi-virginianae* **Flyspeck*** *Schizothyrium pomi* **Sooty Blotch*** *Gloeodes pomigena* **Bot Rot*** *Botryosphaeria dothidea* **Bitter Rot*** *Colletotrichum* spp. **Bull's Eye Rot*** *Neofabraea* spp. ***Not For Use In California**	14 - 20	For control of Brooks Spot, Cedar Apple Rust, Flyspeck, Sooty Blotch, Bot Rot, Bitter Rot and Bull's Eye Rot: Begin applications pre-bloom when environmental conditions are conducive to disease development. Repeat applications at 7- to 14-day intervals or as needed. Apply in sufficient spray volume to ensure thorough coverage. Use the stated higher application rates and shorter spray intervals when conditions are conducive to rapid disease development or heavy disease pressure. For improved performance of SERENADE OPTI, add a surfactant, known to be safe to the target crop, to the spray tank to improve coverage and wetting of plant surfaces. SERENADE OPTI may be applied up to and including the day of harvest (0-day PHI).
	Powdery Mildew* *Podosphaera Leucotricha* ***Not For Use In California**	14 - 20	Begin application at tight cluster, or sooner, if conditions are conducive to disease development. Repeat applications through the second cover spray on a 7- to 10-day interval. Additional sprays beyond second cover may be needed on susceptible varieties or when environmental conditions are conducive to rapid disease development. Use the stated high label rate and shorter spray interval when conditions are conducive to rapid disease development.

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Crops	Disease	Rate oz/acre	Application Instructions
Root / Tuber and Corm Vegetables Carrot Potato Sweet Potato Beets Ginger Horseradish Radish Ginseng Turnip and other root/tuber and corm crops including those grown for seed production	**Black Rot/** **Black Crown Rot** *Alternaria* spp. **Bacterial Leaf Spot*** *Xanthomonas campestris* pv. *Carotae* ***Not For Use In California**	14 - 20	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat on a 7- to 10-day interval or as needed. Use the stated high rate and shorter interval when conditions are conducive to rapid disease development. Apply in sufficient water to provide thorough coverage.
	White Mold *Sclerotinia sclerotiorum* **Gray Mold** *Botrytis* spp.	14 - 20	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat on a 7- to 10-day interval or as needed. For suppression of White Mold, begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat on a 7- to 10-day interval or as needed.
	Aerial Stem Rot* *Erwinia carotovora* ***Not For Use In California**	14 - 20	For suppression, begin applications at the first sign of disease, or when conditions become conducive for disease development. Repeat or as needed on a 7- to 10-day interval.

242 mm

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Crops	Disease	Rate oz/acre	Application Instructions
Stone Fruit Apricot Cherry Nectarine Peach Plum Prune and other stone fruit crops	**Anthracnose** *Colletotrichum* spp. **Fruit Brown Rot** *Monilinia fruticola* **Brown Rot Blossom Blight** *Monilinia laxa* **Bacterial Canker*** *Pseudomonas* spp. **Powdery Mildew*** *Sphaerotheca pannosa* *Podosphaera clandestine* *Podosphaera* spp. **Alternaria Spot / Fruit Rot** *Alternaria alternata* **Gray Mold** *Botrytis cinerea* **Shot Hole** *Wilsonomyces carpophilus* *Xanthomonas pruni* **Bacterial Leaf Spot/ Bacterial Spot*** *Xanthomonas Arboricola* ***Not For Use In California**	14 - 20	**Anthracnose and Fruit Brown Rot** - suppression - Begin application prior to disease development when environmental conditions and plant stage are conducive to rapid disease development and repeat on a 7- to 10-day interval or as needed. **Brown Rot Blossom Blight** – Begin application at early bloom and repeat through petal fall on a 7-day interval or as needed. **Bacterial Canker -** Apply post harvest before fall rains and again during dormancy before spring growth. **Powdery Mildew** - For suppression, begin application at popcorn stage and repeat on a 7-day interval or as needed. **Bacterial Leaf Spot / Bacterial Spot** - Begin applications at bud break and continue on a 7- to 14-day schedule or as needed until harvest. During periods of rapid disease development and frequent infection periods, SERENADE OPTI may be used in a program with other registered antibiotics and/or copper bactericides. For the improved performance of SERENADE OPTI, add a surfactant to the spray tank to improve coverage. For all diseases: Use the stated higher rates and shorter application intervals under heavy disease pressure. For improved performance, use SERENADE OPTI in a tank mix or rotational program with other registered fungicides. Post harvest disease protection – To aid in the control of post harvest infections of Botrytis and Monilinia, apply SERENADE OPTI prior to harvest with sufficient water to thoroughly cover fruit. Apply on a 7-day schedule or as needed up until the time of harvest. SERENADE OPTI may be applied to fruit up to and including the day of harvest.

242 mm

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Crops	Disease	Rate oz/acre	Application Instructions
Strawberry	**Botrytis** *Botrytis cinerea* **Gray Mold** *Botrytis* spp. **Powdery Mildew*** *Sphaerotheca macularis* *Erysiphe* spp. **Anthracnose*** *Colletotrichum acutatum* ***Not For Use In California**	14 - 20	**Botrytis / Powdery Mildew** - For suppression, begin application at or before flowering and repeat on 7- to 10-day intervals or as needed through harvest. Use the stated higher rates and shorter application intervals under heavy disease pressure. For improved performance, use SERENADE OPTI in a tank mix or rotational program with other registered fungicides for Powdery Mildew and Botrytis control. **Anthracnose** – Begin application prior to disease development and repeat on 7- to 10-day intervals or as needed. Use the stated higher rates and shorter application intervals under heavy disease pressure. For improved performance, use SERENADE OPTI in a tank mix or rotational program with other registered fungicides. Thorough coverage is essential. SERENADE OPTI may be applied up to and including the day of harvest.
Tree Nuts Almond Pistachio Pecan Walnut Filberts Chestnut Cashew Beechnut Butternut Macadamia and other tree nut crops	**Alternaria Leaf Spot** *Alternaria alternata* **Anthracnose** *Colletotrichum acutatum* **Shot Hole** *Wilsonomyces carpophilus* *Xanthomonas pruni* **Brown Rot** *Monilinia* spp.	14 - 20	**Anthracnose, Shot Hole and Brown Rot** - suppression - Begin application prior to disease development and repeat on 7- to 10-day intervals or as needed. **Alternaria Leaf Spot** – Begin application prior to disease development and repeat on 7- to 10-day intervals or as needed. Use the stated higher rates and shorter application intervals under heavy disease pressure. For improved performance, use SERENADE OPTI in a tank mix or rotational program with other registered fungicides.
Kiwi	**Botrytis Fruit Rot** *Botrytis cinerea* **Sclerotinia** *Sclerotinia sclerotiorum*	14 - 20	Begin application at early bloom and repeat on 7- to 10-day intervals or as needed. SERENADE OPTI may be applied to fruit up to and including the day of harvest.

242 mm

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

PESTICIDE STORAGE: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

PESTICIDE DISPOSAL: To avoid waste, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or disposal program (often such programs are run by state or local governments or by industry).

CONTAINER DISPOSAL:
For 1000 lb. bulk bag with liner:
Nonrefillable container. Do not reuse or refill this container. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment, then offer for recycling if available or dispose of liner in a sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. If burned, stay out of smoke. If bulk bag is contaminated, dispose of it in the manner required for its liner.

Paper and Plastic bags:
Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment, then offer for recycling if available or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. If burned, stay out of smoke.

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product at once for a refund of the purchase price. By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties, and Limitations of Liability. These terms may only be modified by a written document signed by a duly authorized representative of Bayer CropScience LP.

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Bayer CropScience LP. All such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE LP MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, THAT EXTEND BEYOND THE STATEMENTS MADE ON THIS LABEL. No agent of Bayer CropScience LP is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE LP DISCLAIMS ANY LIABILITY WHATSOEVER FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

LIMITATIONS OF LIABILITY: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW THE EXCLUSIVE REMEDY OF THE USER OR BUYER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE PAID, OR AT BAYER CROPSCIENCE LP'S ELECTION, THE REPLACEMENT OF PRODUCT.

Bayer

117.5 mm

266 mm

242 mm

Lot No.:

Net Contents:

SERENADE® OPTI

A Wettable Powder Biofungicide
FOR AGRICULTURAL USE

ACTIVE INGREDIENT:
QST 713 strain of *Bacillus subtilis** **26.2%**
OTHER INGREDIENTS: **73.8%**

*Contains a minimum of 1.31 x 10^{10} cfu/g **TOTAL: 100.0%**

EPA Reg. No. 264-1160 **EPA Est. No. 264-MEX-001**

KEEP OUT OF REACH OF CHILDREN

CAUTION

FOR ADDITIONAL PRECAUTIONARY STATEMENTS and DIRECTIONS FOR USE: See Attached Booklet.

For **MEDICAL** And **TRANSPORTATION** Emergencies **ONLY** Call 24 Hours A Day 1-800-334-7577
For **PRODUCT USE** Information Call 1-866-99BAYER (1-866-992-2937)

FIRST AID

IF IN EYES:	• Hold eyes open and rinse slowly and gently with water for 15 - 20 minutes. • Remove contact lenses, if present after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin with plenty of water for 15 - 20 minutes. • Call a poison control center or doctor for further treatment advice.
In case of emergency call toll free the Bayer CropScience Emergency Response Telephone No. 1-800-334-7577. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FOR ADDITIONAL PRECAUTIONARY STATEMENTS: See attached label booklet: Personal Protective Equipment, User Safety Recommendations, and Environmental Hazards.

EMERGENCY INFORMATION

For emergencies such as leaks or spills, call 24-hour toll-free BAYER hotline at 1-800-334-7577.

DIRECTIONS FOR USE: See attached booklet.

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

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Research Triangle Park, North Carolina 27709
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Bayer

Can be Used for Organic Production

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