


SONATA[®]

BIOFUNGICIDE

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BIOFUNGICIDE

 Can be Used for Organic Production

ACTIVE INGREDIENT

Bacillus pumilus strain QST 2808 1.38%

OTHER INGREDIENTS 98.62%

Total 100.00%

Contains a minimum of 1×10^{10} cfu/g.

EPA Reg. No. 69592-13

EPA Est. No. 042625-NJ-001

U.S. Patent No. 6,245,551 and 6,586,231 on QST 2808 strain of *Bacillus pumilus*

FOR AGRICULTURAL USE

NET CONTENTS:

2.5 GAL. (9.46 L)

KEEP OUT OF REACH
OF CHILDREN

CAUTION

*See attached booklet for First Aid, Precautionary Statements,
Directions for Use, and Storage & Disposal Instructions.*

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Can be Used for Organic Production

OMRI
Listed

FIRST AID

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice if irritation persists.

IF INHALED: Move person to fresh air. Call a poison control center or doctor for further treatment advice. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

PRECAUTIONARY STATEMENTS**HAZARDS TO HUMANS & DOMESTIC ANIMALS****CAUTION**

Avoid breathing spray mist. Avoid contact with skin or clothing. Remove contaminated clothing and wash clothing before reuse. Wash thoroughly with soap and water after handling. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- NIOSH-approved respirator with any N,P,R or HE filter.

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.

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.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing (PPE) immediately if pesticide gets 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

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 cleaning equipment or disposing of equipment washwaters. Do not apply when weather conditions favor drift or runoff from treated areas.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your state or Tribe, consult the State agency responsible for pesticide regulation.

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 emergencies such as leaks or spills, call 24-hour toll-free CHEMTREC hotline at 1.800.424.9300.

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), restricted entry intervals, and notification to workers. 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.

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.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of the treated area until sprays have dried.

STORAGE & DISPOSAL

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

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

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Do not contaminate water when disposing of equipment rinsate.

CONTAINER DISPOSAL: 2.5-gallon plastic containers – Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For 110-gallon returnable mini-bulk containers – Return empty container for reuse.

GENERAL USE INFORMATION

Sonata® is a broad spectrum, preventative product for the control or suppression of many important plant diseases. Sonata may be applied as a foliar spray alone, in alternating spray programs or in tank mixes with other registered crop protection products. When conditions are conducive to heavy disease pressure, use Sonata in a rotational program with other registered fungicides. Sonata may be applied with spray equipment commonly used for making ground or aerial applications and sprinkler/irrigation systems commonly used for chemigation.

INTEGRATED PEST MANAGEMENT (IPM)

Integrate Sonata 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.

USE RATE DETERMINATION

Carefully read and follow all label directions, use rates and restrictions. Apply Sonata prior to or in the early stages of disease development. Use maximum label rates and shortened spray intervals for conditions conducive to rapid disease development. For proper application, determine the number of acres to be treated, the recommended 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

Sonata 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 determine 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: Thorough coverage is essential for optimum disease control. 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, or a minimum of 3 gallons of water per acre.

CHEMIGATION: This product can be applied through sprinkler or drip type irrigation systems, including center pivot, lateral move, end tow, side wheel roll, traveler, solid set, and hand move. 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 Use Recommendations section of this label.

MIXING INSTRUCTIONS

MIXING: Sonata must be diluted with water for spray application and may be used in spray equipment commonly used for making ground or aerial applications. Partially fill the spray tank with clean water and begin agitation. Add the appropriate amount of Sonata needed for the area treated to the tank. Finish filling the tank to the desired volume to obtain the proper spray concentration. It is critical to maintain agitation continuously 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.

Sonata may be tank-mixed with other registered fungicides to enhance plant disease control. Do not exceed recommended dosage rates. Sonata cannot be mixed with any product with prohibition against such mixing. Use of the resulting tank mix must be in accordance with the more restrictive label limitations and precautions.

COMPATIBILITY: Do not combine Sonata in the spray tank with pesticides, adjuvants, 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 conditions of use.

Sonata 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 they should be evaluated prior to use, as follows: Using a suitable container add proportional amounts of products to water. Add wettable powders first, followed by water dispersible granules, then 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. Before using this product on a large number of plants, 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, using the product in accordance with all label use directions.

ADDITIVES: Sonata 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 such as Biotune™ to spray tank.

CHEMIGATION DIRECTIONS FOR USE

General Requirements:

1. Apply this product through sprinkler or drip type irrigation systems including center pivot, lateral move, end tow, side wheel roll, traveler, solid set or hand move 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 or the equipment manufacturer.
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.

Equipment Requirements:

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 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.
4. The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back towards 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 shut down.
6. 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.
7. 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.
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.

Application Instructions:

1. 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.
2. Do not combine Sonata 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. Sonata has not been fully evaluated for compatibility with all adjuvants or surfactants. It is advisable to 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 Sonata fungicide required to treat area.
- Add required amount of Sonata 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 Sonata 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 Sonata fungicide required to treat area.
- Add the required amount of Sonata 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 Sonata 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 Sonata fungicide solution has cleared the last sprinkler head.

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 determine 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. Note: 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).

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 2 - 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 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.

Application Rates for Selected Crops - Agricultural Use

(Sonata 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 or use Sonata in a tank mix or rotational program with other registered fungicides.

Crops	Disease	Rate qts/acre	Application Instructions
Artichoke	Powdery Mildew <i>Leveillula taunca</i> <i>Erysiphe cichoracearum</i>	2 - 4	Begin application when conditions are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Sonata may be applied up to and including the day of harvest.
Asparagus	Rust <i>Puccinia asparagi</i>	2 - 4	Begin application soon after emergence and when conditions are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Sonata may be applied up to and including the day of harvest.
Berry Blueberries Blackberry Raspberry Loganberry Huckleberry Gooseberry Elderberry Currant Caneberry and other berry crops	Leaf Rust <i>Pucciniastrum vaccinii</i> Powdery Mildew <i>Microsphaera alni</i>	2 - 4	Begin application prior to disease development and repeat on 7 to 14 day intervals or as needed. Sonata may be applied to fruit up to and including the day of harvest.
Brassica Broccoli Cabbage Cauliflower Brussels Sprouts Collards Kale Mustard Greens Kohlrabi and other brassica crops	Downy Mildew <i>Peronospora parasitica</i> <i>Peronospora spp.</i> Powdery Mildew <i>Erysiphe polygoni</i>	2 - 4	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides.

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(Sonata 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 or use Sonata in a tank mix or rotational program with other registered fungicides.

Crops	Disease	Rate qts/acre	Application Instructions
Bulb Vegetables Onion Garlic Shallots and other bulb vegetables	Onion Downy Mildew <i>Peronospora destructor</i> Downy Mildew <i>Peronospora</i> spp. Powdery Mildew <i>Erysiphe</i> spp.	2 - 4	Begin application when environmental conditions and plant stage are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure.
	Rust <i>Puccinia pomi</i>	2 - 4	For suppression, begin application when conditions are conducive to disease development and repeat on 7 to 14 day intervals or as needed. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for rust control.
Cucurbits Cucumber Cantaloupe Melon Muskmelon Squash Watermelon and other cucurbits	Powdery Mildew <i>Erysiphe</i> spp. <i>Sphaerotheca</i> spp. Downy Mildew <i>Pseudoperonospora cubensis</i>	2 - 4	Begin applications soon after emergence or transplant when environmental conditions and plant stage are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Use higher rates and short application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides.
Fruiting Vegetables Pepper Tomato Eggplant and other fruiting vegetables	Early Blight <i>Alternaria solani</i> Late Blight <i>Phytophthora infestans</i>	2 - 4	For suppression, begin application when plants are 4 to 6 inches high when environmental conditions and plant stage are conducive to disease development. Repeat applications on 7 to 14 day intervals or as needed. Use higher rates and shorter intervals under heavy disease development. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for late blight control.
	Powdery Mildew <i>Oidiopsis taunica</i> <i>Erysiphe</i> spp. <i>Sphaerotheca</i> spp. Downy Mildew <i>Pseudoperonospora cubensis</i>	2 - 4	For suppression, begin application soon after emergence or transplant and when environmental conditions are conducive to disease development. Continue applications on 7 to 14 day intervals or as needed. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for powdery mildew control.
Grape	Powdery Mildew <i>Uncinula necator</i>	2 - 4	Begin applications at prebloom. Continue at 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure. Use of a spreader/sticker or wetting agent is recommended to ensure optimum control. (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 14 day intervals until disease conditions to no longer exist).

Application Rates for Selected Crops - Agricultural Use

(Sonata 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 or use Sonata in a tank mix or rotational program with other registered fungicides.

Crops	Disease	Rate* qts/acre	Application Instructions
Hop	Powdery Mildew <i>Sphaerotheca maculans</i> Downy Mildew <i>Peronospora</i> spp.	2 - 4 qts./100 gal	<p>Begin applications when environmental conditions are conducive to rapid disease development. Continue at 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under moderate to heavy disease pressure.</p> <p>Apply at a rate of 2 to 4 quarts per 100 gallons of water using ground equipment. Apply adequate spray volume to achieve complete spray coverage. Minimum spray volume recommendations for hop growth stages are as follows:</p> <p>Emergence to training: Use 2 to 4 quarts of product per 100 gallons of water. Apply using a minimum spray volume of 20 gallons per acre. Coverage will vary with the size of the vines and the type of spray equipment. Apply adequate spray volume to achieve complete spray coverage.</p> <p>Training to wire: Use 2 to 4 quarts of product per 100 gallons of water. Apply using a minimum spray volume of 50 gallons per acre. Coverage will vary with the size of the vines and the type of spray equipment. Apply adequate spray volume to achieve complete spray coverage.</p> <p>Wire touch through harvest: Use 2 to 4 quarts of product per acre. Apply in a minimum spray volume of 100 gallons per acre. Higher water volumes may be necessary to achieve thorough coverage after side arms develop.</p>
Leafy Vegetables Lettuce Celery Spinach Parsley Radicchio and other leafy vegetables	Downy Mildew <i>Bremia lactucae</i> <i>Peronospora</i> spp. Powdery Mildew <i>Erysiphe cichoracearum</i>	2 - 4	For suppression, begin application when conditions are conducive to disease development and repeat on a 7 to 14 day interval or as needed. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides.
Legumes Vegetables Beans Green beans Snap beans Shelt beans Dry beans Garbanzo beans Lima beans Peas Chick Peas Split Peas Lentils and other legumes vegetables	Rust <i>Puccinia</i> spp. Powdery Mildew <i>Erysiphe</i> spp.	2 - 4	Begin applications when environmental conditions are conducive to disease development. Continue at 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure.
Mint	Rust <i>Puccinia menthae</i> Powdery Mildew <i>Erysiphe</i> spp. Downy Mildew <i>Peronospora</i> spp.	2 - 4	Begin application soon after emergence and when conditions are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure.

* Rate presented in quarts/acre unless otherwise noted.

Application Rates for Selected Crops - Agricultural Use

(Sonata 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 or use Sonata in a tank mix or rotational program with other registered fungicides.

Crops	Disease	Rate qts/acre	Application instructions
Pome Fruit Apple Crabapple Pear Quince Mayhaw and other pome fruit crops	Scab <i>Venturia</i> spp.	2 - 4	For suppression, begin application at green tip or when environmental conditions become favorable for primary scab development and repeat on 7 to 14 day intervals. When environmental conditions are conducive to rapid disease development, for improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for scab control.
	Powdery Mildew <i>Podosphaera leucotricha</i>	2 - 4	Begin application at tight cluster, or sooner, if conditions are conducive to disease development. Repeat applications through the second cover spray at 7 to 14 day intervals. Additional sprays beyond second cover may be needed on susceptible varieties or when environmental conditions are conducive to rapid disease development or under heavy disease pressure. Use higher rates and shorter spray intervals when conditions are conducive to rapid disease development or heavy disease pressure.
Root / Tuber Vegetables Potato Sweet Potato Carrot Beets Ginger Horseradish Radish Ginseng Turnip and other root/tuber vegetables	Early Blight <i>Alternaria solani</i> Late Blight <i>Phytophthora infestans</i>	2 - 4	For suppression, begin application soon after emergence and when conditions are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for late blight control.
	Downy Mildew <i>Peronospora</i> spp. Powdery Mildew <i>Erysiphe</i> spp. White Mold <i>Sclerotinia sclerotiorum</i>	2 - 4	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat application at 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure.
Roses, Field	Powdery Mildew <i>Sphaerotheca</i> spp. Rust <i>Puccinia</i> spp.	2 - 4	Begin applications when environmental conditions and plant stage are conducive to disease development. Continue applications on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure.
Stone Fruit Apricot Cherry Nectarine Peach Plum Prune and other stone fruit crops	Powdery Mildew <i>Sphaerotheca pannosa</i> <i>Podosphaera clandestine</i> <i>Podosphaera</i> spp.	2 - 4	Begin application at popcorn stage and repeat on 7 to 14 day intervals or as needed. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for powdery mildew control. Sonata may be applied to fruit up to and including the day of harvest.
Strawberry	Powdery Mildew <i>Sphaerotheca macularis</i> <i>Erysiphe</i> spp.	2 - 4	For suppression, begin applications at or before flowering and repeat on 7 to 14 day intervals or as needed throughout harvest. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for powdery mildew control. Sonata may be applied up to and including the day of harvest.

Application Rates for Selected Crops - Agricultural Use

(Sonata 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 or use Sonata in a tank mix or rotational program with other registered fungicides.

Crops	Disease	Rate qts/acre	Application Instructions
Sweet Corn	Common rust <i>Puccinia sorghi</i> Northern Leaf Blight <i>Exserohilum turcicum</i> <i>Helminthosporium turcium</i> Southern Leaf Blight <i>Bipolaris maydis</i> <i>Helminthosporium maydi</i> <i>Cochliobolus heterostrophus</i>	2 - 4	Begin applications when environmental conditions are conducive to disease development. Continue applications on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure.

Application Rates for Greenhouse Crops

(Sonata 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 or use Sonata in a tank mix or rotational program with other registered fungicides.

Crops	Disease	Rate qts/100 gallons spray mix	Application Instructions
Brassica Broccoli Cabbage Cauliflower Brussels Sprouts Collards Kale Mustard Greens Kohlrabi and other brassica crops	Downy Mildew <i>Peronospora parasitica</i> <i>Peronospora spp.</i> Powdery Mildew <i>Erysiphe polygoni</i>	2 - 4	Begin application soon after emergence or transplant and when conditions in the greenhouse are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides.
Bulb Vegetables Onion Garlic Shallots and other bulb vegetables	Onion Downy Mildew <i>Peronospora destructor</i> Downy Mildew <i>Peronospora spp.</i> Powdery Mildew <i>Erysiphe spp.</i>	2 - 4	Begin application when environmental conditions in the greenhouse are conducive to disease development and repeat on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure.
Cucurbits Cucumber Cantaloupe Melon Muskmelon Squash Watermelon and other cucurbits	Powdery Mildew <i>Erysiphe spp.</i> <i>Sphaerotheca spp.</i> Downy Mildew <i>Pseudoperonospora cubensis</i>	2 - 4	Begin application soon after emergence or transplant and when environmental conditions in the greenhouse are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Use higher rate and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides.

Crops	Disease	Rate qts/100 gallons spray mix	Application Instructions
Fruiting Vegetables Pepper Tomato Eggplant and other fruiting vegetables	Powdery mildew <i>Oidiopsis taunca</i> <i>Erysiphe</i> spp. <i>Sphaerotheca</i> spp. Downy Mildew <i>Pseudoperonospora cubensis</i>	2 - 4	For suppression, begin application soon after emergence or transplant and continue on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for powdery mildew control.
	Early Blight <i>Alternaria solani</i> Late Blight <i>Phytophthora infestans</i>	2 - 4	For suppression, begin application when plants are 4 to 6 inches high when environmental conditions are conducive to disease development. Repeat applications on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for late blight control.
Leafy Vegetables Lettuce Celery Spinach Parsley Radicchio and other leafy vegetables	Downy Mildew <i>Bremia lactucae</i> <i>Peronospora</i> spp. Powdery Mildew <i>Erysiphe cichoracearum</i> <i>Erysiphe</i> spp.	2 - 4	For suppression, begin application when conditions are conducive to disease development and repeat on 7 to 14 day intervals or as needed. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for downy mildew and powdery mildew control.
Root / Tuber Potato Sweet Potato Carrot Beets Ginger Horseradish Radish Ginseng Turnip and other root/tuber crops	Early Blight <i>Alternaria solani</i> Late Blight <i>Phytophthora infestans</i>	2 - 4	For suppression, begin application soon after emergence and when conditions are conducive to disease development. Repeat on 7 to 14 day intervals or as needed. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for late blight control.
Strawberry	Powdery Mildew <i>Sphaerotheca maculans</i> <i>Erysiphe</i> spp.	2 - 4	For suppression, begin application at or before flowering, when new growth starts and before fruit starts to form, when environmental conditions are conducive to disease development. Repeat on 7 to 14 day intervals or as needed through harvest. Use higher rates and shorter application intervals under heavy disease pressure. For improved performance, use Sonata in a tank mix or rotational program with other registered fungicides for powdery mildew control. Sonata may be applied up to and including the day of harvest.

CONDITIONS FOR SALE AND WARRANTY

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Can be used for Organic Production

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BIOFUNGICIDE

 Can be Used for Organic Production

ACTIVE INGREDIENT

Bacillus pumilus strain QST 28081.38%

OTHER INGREDIENTS 98.62%

Total100.00%

Contains a minimum of 1×10^{10} cfu/g.

EPA Reg. No. 69592-13

EPA Est. No. 042625-NJ-001

U.S. Patent No. 6,245,551 and 6,586,231 on QST 2808 strain of *Bacillus pumilus*

NET CONTENTS:

2.5 GAL. (9.46 L)

KEEP OUT OF REACH
OF CHILDREN

CAUTION

See attached booklet for complete Directions for Use.

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www.agraquest.com

AGRAQUEST

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SONATA[®]

BIOFUNGICIDE

FIRST AID

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice if irritation persists.

IF INHALED: Move person to fresh air. Call a poison control center or doctor for further treatment advice. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Avoid breathing spray mist. Avoid contact with skin or clothing. Remove contaminated clothing and wash clothing before reuse. Wash thoroughly with soap and water after handling. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- NIOSH-approved respirator with any N, R, or HE filter.

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.

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.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing (PPE) immediately if pesticide gets

USER SAFETY RECOMMENDATIONS (cont'd)

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

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 cleaning equipment or disposing of equipment washwaters. Do not apply when weather conditions favor drift or runoff from treated areas.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your state or Tribe, consult the State agency responsible for pesticide regulation.

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 emergencies such as leaks or spills, call 24-hour toll-free CHEMTREC hotline at 1.800.424.9300.

STORAGE & DISPOSAL

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

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


PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Do not contaminate water when disposing of equipment rinsate.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.



Can be Used for Organic Production



PULL HERE TO OPEN 

LOT #21IAGB0091