

2023-0998
2023-12-06



GROUP	BM02	FUNGICIDE
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SERENADE® ASO
An Aqueous Suspension Biofungicide

Live Organism

COMMERCIAL

ACTIVE INGREDIENT:

QST 713 strain of *Bacillus subtilis*, contains a minimum of 1×10^9 CFU/g

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL AND BOOKLET BEFORE USING

POTENTIAL SENSITIZER

REGISTRATION NO.: 28626 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 9.46L - 1000L

Product Information: 1-888-283-6847

www.cropscience.bayer.ca

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. S.E.
Calgary, Alberta T2C 3G3

In case of spills, poisoning or fire, telephone emergency response number
1-800-334-7577 (24 hours a day).

Date of Manufacture:

Made in Mexico

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. May cause sensitization. Avoid contact with eyes, skin or clothing. Avoid inhaling/breathing spray mist. Wear a long-sleeved shirt, long pants, waterproof gloves, socks and shoes and a NIOSH-approved particulate filtering facepiece respirator with any N, R or P filter when handling, mixing/loading or applying the product and during all clean-up/repair activities. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Wear a long-sleeved shirt, long pants, waterproof gloves, socks and shoes and a NIOSH-approved particulate filtering facepiece respirator with any N, R or P filter when handling potatoes treated with SERENADE ASO during sorting/culling-related activities and during potato processing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin/clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

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

If in eyes: Hold eye 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 centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

STORAGE: SERENADE ASO should be used within 3 years from the date of manufacture when stored at room temperature. Store this product away from food or feed. Store in a dry area inaccessible to children. Store in original container only. Keep container closed when not in use.

DISPOSAL: 1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. 2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal. 3. Make the empty container unsuitable for further use. 4. Dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.



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Wear a long-sleeved shirt, long pants, waterproof gloves, socks and shoes and a NIOSH-approved particulate filtering facepiece respirator with any N, R or P filter when handling potatoes treated with SERENADE ASO during sorting/culling-related activities and during potato processing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Apply only to agricultural crops when the potential for drift to areas of human habitation and human activity, such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin/clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

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

If in eyes: Hold eye 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 centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS:

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.

STORAGE: SERENADE ASO should be used within 3 years from the date of manufacture when stored at room temperature. Store this product away from food or feed. Store in a dry area inaccessible to children. Store in original container only. Keep container closed when not in use.

DISPOSAL:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL USE INFORMATION:

SERENADE ASO is a broad spectrum, preventative biofungicide for the suppression of many important plant diseases. It may be applied as a foliar spray or soil application by various methods alone, or in an alternating spray program with other registered crop protection products. For maximum effectiveness in foliar sprays, apply SERENADE ASO prior to or in the early stages of disease development. When conditions are conducive to heavy disease pressure, use SERENADE ASO in a rotational program with other registered fungicides. SERENADE ASO may be applied with ground and aerial application equipment for indicated crops.

INTEGRATED PEST MANAGEMENT (IPM):

For disease resistance management, SERENADE ASO can be integrated 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 SERENADE ASO in foliar sprays or through ground application 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 or heavy disease pressure. For proper application, determine the number of hectares to be treated, the recommended label use rate and select appropriate application volume for the method of application to be used. For foliar applications, ensure good canopy penetration and coverage of plant parts to be protected. Prepare only the amount of spray solution required to treat the measured hectareage. Accurate spray equipment calibration is essential prior to use.

DIRECTIONS FOR USE:

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many 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 provinces/territories have more stringent regulations, they should be observed.

Use Restrictions: As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wash water.

DO NOT apply in greenhouses.

DO NOT apply this product through any other type of irrigation system.

DO NOT apply when wind speed causes non-uniform distribution and/or favours drift beyond the area intended for treatment.

DO NOT apply by chemigation if the area to be treated is within 100 m of a residential area or park.

DO NOT apply by aerial application equipment unless otherwise specified in crop-specific use directions.

Tank Mix:

This product may be tank mixed with a fertilizer, a supplement, or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions For Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on this label.

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact Bayer CropScience Inc. at www.cropscience.bayer.ca or phone 1-888-283-6847 for information before applying any tank mix that is not specifically recommended on this label.

Restricted Entry Interval (REI): Spray applications – DO NOT allow worker entry into treated areas for 4 hours or until sprays have dried unless wearing waterproof gloves, long-sleeved shirt, long pants, socks and shoes. Drip irrigation, drench, shanked-in and injected applications – Entry to the treated area is not restricted following application.

Preharvest interval: SERENADE ASO can be used up to and including the day of harvest. PHI=0 days. SERENADE ASO may be applied postharvest on potato prior to storage.

APPLICATION INSTRUCTIONS:

Be sure to maintain agitation during mixing and application to assure uniform product suspension.

GROUND APPLICATIONS: For foliar applications, thorough coverage of all foliage is essential for effective disease control. SERENADE ASO can be applied in commonly used ground application equipment. To achieve good coverage, use the appropriate spray pressure, litres per

hectare, nozzles, nozzle spacing and ground speed. Consult spray nozzle and accessory catalogues for specific information on proper equipment calibration.

AERIAL APPLICATIONS: Use the application rate indicated for the appropriate crop in sufficient water to achieve thorough coverage.

Aerial Application Instructions

Apply only by fixed-wing or rotary aircraft equipment that has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product-specific. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application by using appropriate marking devices and/or electronic guidance equipment.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only when meteorological conditions are in compliance with local and/or provincial authorities.

Operator Precautions

Do not allow the pilot to mix product to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application. The field crew and the mixer/loaders must wear the personal protective equipment described in the PRECAUTIONS section of this label. All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural or forestry representative. Application of this specific product must meet and/or conform to the aerial uses and rates on this product.

SOIL APPLICATIONS:

SERENADE ASO suppresses the diseases specified for the listed crops. Higher rate is recommended under conditions of moderate to high disease pressure. Apply SERENADE ASO in a manner that will concentrate the product in the seed, root, or transplant zone. Delivery of SERENADE ASO to the seed, root, or transplant zone can be accomplished by in-furrow application, transplant drench, broadcast or banded applications on the soil surface, or by surface drip irrigation. These application methods facilitate the colonization of crop roots with the active ingredient and optimize efficacy.

For in-furrow applications spray SERENADE ASO in a narrow band with the spray directed at the seed and surrounding soil before covering the seed or seed piece. For broadcast or banded application to the soil surface, SERENADE ASO must be incorporated into the seed zone by rainfall or overhead irrigation within 24 hours. SERENADE ASO may also be applied via overhead irrigation. Drip irrigation applications should be made with the first irrigation after seeding or transplanting. SERENADE ASO may be injected or shanked into the soil, at the seed zone, prior to planting a crop. With transplanted crops, optimum performance is achieved when SERENADE ASO is applied in the drench water at the time of transplanting.

After crop germination or transplanting, additional applications of SERENADE ASO may be made. Such applications may include drip irrigation (surface or subsurface), soil directed sprays or shanking in. Use higher rates with broadcast applications and in fields with a history of disease problems. SERENADE ASO has a 0 day PHI, and can be applied up to, and including, the day of harvest. SERENADE ASO can be used in a rotational program with other registered fungicides which control the disease. Do not use on crops that are not specifically listed on the label.

Ground Application Only

Crop Group 1: Root, tuber vegetables Garden beet, sugar beet, carrot, celeriac, chervil, chicory, ginseng, horseradish, parsley, parsnip, potato, radish, Oriental radish, rutabaga, salsify, sweet potato, turnip.		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Rhizoctonia root rot, black scurf and stem canker (<i>Rhizoctonia solani</i>)	2.7 - 14	1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage
Phytophthora root rot and pink rot (<i>Phytophthora erythroseptica</i>)		
Pythium root rot and cavity spot (<i>Pythium</i> spp.)		
Fusarium root rot (<i>Fusarium</i> spp.)		

Crop Group 3: Bulb Vegetables Garlic, leek, onion, shallot		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Rhizoctonia damping-off and root rot (<i>Rhizoctonia solani</i>) Pink root (<i>Phoma terrestris</i>) Pythium root rot (<i>Pythium</i> spp.)	2.7 - 14	1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Crop Group 4: Leafy vegetables Celery, lettuce, parsley, raddichio, rhubarb, spinach, Swiss chard		
Crop Group 5: Brassica (Cole) leafy Vegetables Broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale, kohlrabi, mustard greens		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Rhizoctonia damping-off and root rot (<i>Rhizoctonia solani</i>) Phytophthora root rot (<i>Phytophthora erythroseptica</i>) Pythium root rot (<i>Pythium</i> spp.)	2.7 - 14	1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Crop Group 6: Legume Vegetables Bean (<i>Lupinus</i> spp., <i>Phaseolus</i> spp., and <i>Vigna</i> spp.), chickpea, lentil, and pea (all types)		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Fusarium root rot (<i>Fusarium</i> spp.) Pythium root rot (<i>Pythium</i> spp.) Rhizoctonia root rot (<i>Rhizoctonia solani</i>)	2.7 - 14	1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Crop Group 8: Fruiting Vegetables Eggplant, ground cherry, okra, pepino, peppers (all varieties), tomatillo, tomatoes		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Phytophthora blight (<i>Phytophthora capsici</i>) Pythium root rot (<i>Pythium</i> spp.) Rhizoctonia damping off and root rot (<i>Rhizoctonia solani</i>) Fusarium wilt, crown and root rot (<i>Fusarium oxysporum lycopersici</i>)	2.7 - 14	1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Crop Group 9: Cucurbits: Cantaloupe, Chinese waxgourd, cucumber, gherkin, edible gourd, melon, muskmelon, squash, pumpkin, and watermelon.		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Rhizoctonia damping off and root rot (<i>Rhizoctonia solani</i>) Fusarium root rot (<i>Fusarium</i> spp.) Phytophthora blight (<i>Phytophthora capsici</i> , <i>Phytophthora richardiae</i>) Pythium root rot (<i>Pythium</i> spp.)	2.7 - 14	1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Asparagus		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Phytophthora root rot (<i>Phytophthora</i> spp.)	2.7 - 14	1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Peanut		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Rhizoctonia damping off and root rot (<i>Rhizoctonia solani</i>)	2.7 - 14	<ol style="list-style-type: none"> 1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Strawberry		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Rhizoctonia damping off and root rot (<i>Rhizoctonia solani</i>)	2.7 - 14	<ol style="list-style-type: none"> 1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Tobacco		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Rhizoctonia damping off and root rot (<i>Rhizoctonia solani</i>) Pythium root rot (<i>Pythium</i> spp.)	2.7 - 14	<ol style="list-style-type: none"> 1. Surface applications 2. Transplant drench 3. In-Furrow Applications 4. Shanked-In and Injected Applications 5. Post planting applications at any crop stage

Corn (Field Corn, Sweet Corn, Popcorn, Seed Corn, Silage Corn)		
Disease Suppressed	Rate (litre/ hectare)	Soil Application Methods and Instructions*
Rhizoctonia root rot (<i>Rhizoctonia solani</i>) Pythium root rot (<i>Pythium</i> spp.) Fusarium root rot (<i>Fusarium</i> spp.)	2.7 - 14	1. Soil surface applications 2. In-Furrow Applications 3. Shanked-In and Injected Applications 4. Post planting applications at any crop stage
Mix 2.7 - 14 L of SERENADE ASO in the appropriate amount of water per hectare. Use the higher application rates when the weather conditions are expected to be conducive to disease development, if the field has a history of disease problems, or if minimum/low till programs are in place.		

***APPLICATION INSTRUCTIONS**

1. Soil surface applications:

Broadcast or Band. Apply as a 15-cm band over the top of the seed row or as a broadcast spray after planting. Use higher rates for broadcast applications. Ensure incorporation into the seed zone within 24 hours of applications with rain or overhead irrigation.

Overhead irrigation. Apply with irrigation water, ensuring uniform coverage of the soil and incorporation of product into the seed zone.

Surface drip irrigation. Apply product with the first irrigation after planting.
Instructions Continued from above.

2. Transplant drench:

Apply finished spray mixture, at a rate to thoroughly soak the growing media through the root zone or as a drench or directed spray using sufficient water to soak the root zone.

3. In-Furrow Applications:

Apply as an in-furrow spray in the appropriate amount of water per acre for the crop at planting. Mount the spray nozzle so the spray is directed in the furrow just before the seeds are covered.

4. Shanked-In and Injected Applications:

Product can be shanked-in or injected into the soil prior to-, at-, or post-planting/transplanting of crops.

5. Post planting applications at any crop stage:

Apply the finished spray mixture to the soil as a drench, spray, or drip irrigation, directing it towards the base of the plant to optimize efficacy. When applying as a spray (e.g., via hydraulic nozzles at low volumes), it is important to irrigate to move the material into the seed, root or transplant zone. Applications may be repeated at 21-28 day intervals to enhance preventive treatments. The shorter interval is recommended under moderate to high disease pressure.

FOLIAR SPRAY APPLICATIONS:

When applied with ground or aerial spray equipment as directed, SERENADE ASO will suppress the following listed diseases on the following listed field crops. Under conditions of moderate to high disease pressure, use the higher rate and shorter application intervals. For maximum effectiveness, apply SERENADE ASO prior to, or at the early stages of disease development. Apply in sufficient water volume to ensure full coverage for effective control. SERENADE ASO has a 0 day PHI, and can be applied up to, and including, the day of harvest. SERENADE ASO can be used in a rotational program with other registered fungicides which control the disease. Do not use on crops that are not specifically listed on the label.

Ground Application Only

Crop Group 1 Root tuber vegetables:		
Garden beet, sugar beet, carrot, celeriac, chervil, chicory, ginseng, horseradish, turnip-rooted parsley, parsnip, potato, radish, Oriental radish, rutabaga, salsify, sweet potato, and turnip.		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
White mould (<i>Sclerotinia sclerotiorum</i>)	8.0-15.0	Begin application soon after emergence and when conditions are conducive to disease development. Repeat as necessary on a 7-10 day interval.
Early blight (<i>Alternaria solani</i>) (Potato only)		
Cercospora Leaf Spot (<i>Cercospora beticola</i>) (Sugar, Garden beets only)	4.0 – 8.0	Begin application soon after emergence and when conditions are conducive to disease development. Repeat as necessary on a 7-10 day interval. SERENADE ASO must be applied with a non-ionic surfactant at a rate of 0.25% v/v or at labeled rates. Use foliar boom or overhead boom spray equipment.

		Under conditions of moderate to high disease pressures, use the higher rate and shorter application interval indicated.
Downy mildew (<i>Peronospora parasitica</i>) (Radish, turnip and rutabaga only)	10.0	Downy mildew: Begin application when environmental conditions are conducive to disease development and repeat on 7-10 day intervals.

Crop Group 3 Crops (Bulb Vegetables) Onions (all types), garlic (all types), leeks, shallots and chives		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Botrytis neck rot (<i>Botrytis allii</i>) Botrytis leaf blight (<i>Botrytis squamosa</i>)	12.0-18.0	Begin applications at the first sign of disease, or when conditions become conducive for disease development. Repeat as necessary on a 7-10 day interval.
Downy mildew (<i>Peronospora destructor</i>)	12.0-24.0	

Crop Group 4 Crops (Leafy Vegetables) Amaranth, arugula, celery, Chinese celery, celtuce, chervil, corn salad, cress, dandelion, dock, endive, fennel, lettuce, orach, parsley, radicchio, and swiss chard.		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Powdery mildew (<i>Erysiphe cichoracearum</i>)	4.0-12.0	Begin application when environmental conditions are conducive to disease development and repeat on 7-10 day intervals.
Grey mould (<i>Botrytis cinerea</i>)	4.0-12.0	For suppression, begin applications soon after emergence or transplant and continue as necessary on a 7 to 10 day interval. When environmental conditions are conducive to rapid disease development, use SERENADE ASO in a rotational program with other registered fungicides. Thorough coverage is essential.
Sclerotinia rot (<i>Sclerotinia sclerotiorum</i> , <i>Sclerotinia minor</i>)	5.0-15.0	Head and leaf drop: Apply as a directed spray with multiple nozzles to 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 10-14 day intervals if conditions for disease development persist. Use higher rate and lower application intervals under conditions of moderate to high disease pressure.

Downy mildew (<i>Bremia lactucae</i>) (Lettuce only)	7.0-15.0	Begin application when environmental conditions are conducive to disease development and repeat on 7-10 day intervals.
Pink rot (<i>Sclerotinia sclerotiorum</i>) (Celery only)	5.0-15.0	Pink rot: Begin application approximately 8 weeks before harvest and repeat on 14-day intervals.
White rust (<i>Albugo occidentalis</i>) (Spinach only)	4.0-8.0	Begin applications at the first sign of disease, or when conditions become conducive for disease development. Repeat as necessary on a 7-10 day interval.

Crop Group 5: Brassica vegetables

Broccoli, Chinese broccoli, Broccoli raab, Brussels sprouts, cabbage (all types), cauliflower, cavalo broccoli, collards, kale, kohlrabi, mizuna, mustard greens, mustard spinach, and rape greens.

Disease suppressed	Rate (litre/ hectare)	Application Instructions
Sclerotinia rot (<i>Sclerotinia sclerotium</i>)	12.0-24.0	Begin application when environmental conditions are conducive to disease development and repeat on 7-10 day intervals.
Downy mildew (<i>Peronospora parasitica</i>)	8.0-15.0	
Pin rot (<i>Alternaria / Xanthomonas Complex</i>)		

Crop Group 6: Legume vegetables

Bean (*Lupinus spp.*, *Phaseolus spp.*, and *Vigna spp.*), chickpea, lentil, and pea (all types)

Disease suppressed	Rate (litre/ hectare)	Application Instructions
Botrytis blight (<i>Botrytis cinerea</i>)	4.0-15.0	Begin application soon after emergence or transplant and when conditions are conducive for disease development. Repeat on 7-10 day intervals.
White Mould (<i>Sclerotinia sclerotiorum</i>)		

Soybean		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
White Mould (<i>Sclerotinia sclerotium</i>)	4.0 -15.0	Begin application soon after emergence and when conditions are conducive to disease development. Repeat as necessary on a 7-10 day interval.
Brown spot (<i>Septoria glycines</i>)	1.0-4.0	
Frog eye (<i>Cercospora sojina</i>)		

Crop Group 8: Fruiting vegetables: Eggplant, ground cherry, okra, pepino, peppers (all varieties), tomatillo, tomatoes		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Grey mould (<i>Botrytis cinerea</i>)	4.0-15.0	Begin application soon after emergence or transplant and continue on 7-10 day intervals. When conditions are conducive to rapid disease development, use SERENADE ASO in a rotational program with other registered fungicides.
Early blight (<i>Alternaria solani</i>)	8.0-15.0	Make the first application when plants are 6-10 cm high, or when conditions are conducive for disease development. Repeat applications on an interval of 5-7 days.
Powdery mildew (<i>Erysiphe orontii</i> , <i>Leveillula taurica</i>) (Tomato, Pepper (bell pepper, chili pepper, pimento and sweet pepper)- only)	5.0-15.0	Begin application soon after emergence or transplant and continue on 7-10 day intervals. Use higher rate and lower application intervals under conditions of moderate to high disease pressure.
Bacterial spot (<i>Xanthomonas campestris</i>) (Tomato, Pepper (bell pepper, chili pepper, pimento and sweet pepper)- only)	4.0-15.0	Begin application soon after emergence or transplant, when conditions are conducive to disease development. Repeat as necessary on a 7-10 day interval. When environmental conditions and plant stage are conducive to rapid disease development, use SERENADE ASO in a rotational program with other registered bactericides.

Crop Group 9: Cucurbits: Cantaloupe, Chinese waxgourd, cucumber, gherkin, edible gourd, melon, muskmelon, pumpkin, and watermelon.		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Powdery mildew <i>(Sphaerotheca fuliginea)</i> Downy Mildew <i>Pseudoperonospora cubensis</i>	5.0-15.0	Begin application soon after emergence or transplant and continue on 7-10 day intervals. Use higher rate and lower application intervals under conditions of moderate to high disease pressure.

Crop Group 11 (Pome Fruits): Apple, Crabapple, Pear, Oriental Pear, Quince, Loquat, Mayhaw, and non-bearing pome fruit trees		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Fire blight (<i>Erwinia amylovora</i>)	5.0-15.0	Fire blight: Begin application at 1-5% bloom and repeat, as necessary, to protect open, untreated blossoms when environmental conditions are conducive to disease development. For maximum control, use SERENADE ASO prior to and as close as possible to fire blight infection events. During period of rapid bloom development and frequent infection periods, apply at 4-7 day intervals. After petal fall, continue application on 7-10 day intervals if environmental conditions are conducive to disease development. Apply in sufficient water to provide full coverage. For improved performance, use SERENADE ASO in a rotational program with Streptomycin.
Scab (<i>Venturia inaequalis</i> ; <i>V. pirina</i>)	12-24	Begin application at green tip or when environmental conditions become favorable for primary scab development and repeat on 7 to 10 day intervals or as needed. When environmental conditions are conducive to rapid disease development, for improved performance use SERENADE ASO in a tank mix or rotational program with other registered fungicides.
Powdery mildew (<i>Podosphaera leucotricha</i>)	10.0-15.0	Powdery mildew: Begin application at tight cluster or sooner, if environmental conditions are conducive to disease development. Repeat applications through the second cover spray on 7-10 day intervals. Use higher rate and lower application intervals under conditions of moderate to high disease pressure.

Crop Group 12 Crops (Stone Fruits): Apricot, cherry, nectarine, peach, plum, plumcot, and prune		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Brown Rot (<i>Monilinia spp.</i>)	8.0-12.0	Begin application at early bloom and repeat as necessary through petal fall on a 7-day interval.

Crop Group 13-07: Berries Bayberry; bearberry; blackberry; highbush and lowbush blueberry; chokecherry; currant; elderberry; gooseberry; huckleberry; lingonberry; loganberry, mulberry; pincherry; raspberry; salal; Saskatoon berry; sea buckthorn; wild raspberry.		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Botrytis blight (<i>Botrytis cinerea</i>)	4.0-15.0	Begin application prior to disease development and repeat on 7-10 day intervals.
Bacterial blight (<i>Pseudomonas syringae</i>)	4.0-12.0	Apply before fall rains and again during dormancy before spring.
Mummy berry (<i>Monilinia vaccinii-corymbosi</i>) (Highbush blueberry, lowbush blueberry – only)	24.0	Begin applications at the bud break stage of development. Repeat as necessary on a 7-14 day interval.

Strawberry		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Grey mould (<i>Botrytis cinerea</i>)	4.0-15.0	Begin application at or before flowering and repeat on 7-10 day intervals through harvest. Use higher rate and lower application intervals under heavy disease pressure.

Grape		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Sour rot (a complex of pathogens)* Gray mould (<i>Botrytis cinerea</i>)	5.0-15.0	Gray mould and sour rot*: Begin application at bloom, before bunch closure, at veraison and preharvest, up to the day of harvest if necessary. Powdery Mildew: Begin application when new shoots are at 1 to 3 cm (½- to 1½-inches) long. Repeat when shoots are 6 to 10 cm (3 to 5 inches) and 18 to 20 cm (8 to 10 inches) long at 7-10 day intervals.
Powdery mildew (<i>Uncinula necator</i>)	9.0-15.0	

		<p>Apply in sufficient water to provide full coverage. SERENADE ASO may be applied to fruit up to and including the day of harvest. Use higher rate and lower application intervals under conditions of moderate to high disease pressure.</p> <p>*Note that sour rot disease is caused by various yeast, fungal and bacterial pathogens, and that SERENADE ASO has not been tested for control of all these agents.</p>
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<p>Crop Group 19: Herbs and Spices Anise, balm, basil, borage, chamomile, caraway, catnip, celery seed, chervil, chive, coriander, costmary, dill, fennel, fenugreek, horehound, juniper berry, lavender, lemongrass, lovage, marigold, mustard (seed), nasturtium, parsley, rosemary, sage, savory, sweet bay, thyme, wintergreen, woodruff, and wormwood including transplants</p>		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
<p>Botrytis gray mould <i>(Botrytis cinerea)</i></p> <p>White mould <i>(Sclerotinia sclerotiorum)</i></p>	4.0 – 15.0	Begin application when environmental conditions are conducive to disease development. Repeat as necessary on a 7- to 10-day interval.

<p>Asparagus</p>		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
<p>Botrytis blight <i>(Botrytis cinerea)</i></p>	4.0-15.0	Begin application soon after emergence and when conditions are conducive for disease development. Repeat on 7-10 day intervals.

<p>Peanut</p>		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
<p>Leaf spot <i>(Cercospora arachidicola,</i> <i>Cercosporidium personatum)</i></p>	4.0-12.0	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat as necessary on a 7-10 day interval.

Ground and Aerial Application

Crop Subgroup 20A: Oilseed crops (rapeseed subgroup) Canola, borage, crambe, cuphea, echium, flax seed, gold of pleasure, hare's ear mustard, lesquerella, lunaria, meadowfoam, milkweed, mustard seed, oil radish, poppy seed, rapeseed, sweet rocket, cultivars, varieties and/or hybrids of these		
Disease suppressed	Rate (litre/ hectare)	Application Instructions
Sclerotinia stem rot <i>(Sclerotinia sclerotiorum)</i>	2.5 – 6.25	Begin application at 20% - 30% bloom. A second application may be made 7-10 days later, at approximately 50% bloom and prior to significant petal fall, if conditions for disease development remain favorable. Use higher rates in fields with a history of heavy disease pressure. Minimum Spray Volume for Ground and Aerial Application: 50 L of water/ha.

POST HARVEST DISEASE PROTECTION

Potatoes		
Disease suppressed	Rate (mL/tonne)	Application Instructions
Silver Scurf <i>(Helminthosporium solani)</i>	85-175	Potatoes: For post harvest application to aid in the control of silver scurf. Sanitation and other cultural practices should also be employed to aid in control and minimize the potential for disease. <u>Conveyer Line Application:</u> Prepare the equivalent of 5 - 10 liters of SERENADE ASO in 100 liters of water. Spray 2 liters of the SERENADE ASO/water suspension per tonne of potatoes. Potatoes must rotate along the conveyor line into the storage area to ensure complete coverage. If needed, adjust rate of spray solution to ensure thorough coverage while maintaining recommended rate of SERENADE ASO per tonne of potatoes.

MINOR USES:

<p>The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Bayer CropScience Inc. under the User Requested Minor Use Label Expansion program. For these uses, Bayer CropScience Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.</p>		
<p>Hops</p>		
Disease suppressed	Rate (litres/ hectare)	Application Instructions
Downy mildew (<i>Pseudoperonospora humuli</i>) Partial suppression	15.0	Downy mildew: Begin application when environmental conditions are conducive to disease development and repeat on 7-10 day intervals. Use the shorter application intervals under conditions of moderate to high disease pressure.
<p>Alfalfa</p>		
Disease suppressed	Rate (litres/ hectare)	Application Instructions
Blossom blight (<i>Botrytis cinerea</i>)	4.0 – 15.0	Begin application prior to disease development when environmental conditions are conducive to disease development. Use higher rate and shorter application intervals under conditions of moderate to high disease pressure. Repeat as necessary on a 7- to 10-day interval.

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