

***Serenade*[®] *ASO*[™]**
An Aqueous Suspension Biofungicide

COMMERCIAL

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

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL BEFORE USING

POTENTIAL SKIN SENSITIZER

REGISTRATION NO.: 28626 PEST CONTROL PRODUCTS ACT

NET CONTENTS:

AgraQuest, Inc.
1540 Drew Avenue
Davis, California, USA 95618
Phone: 1-800-962-8980
www.agraquest.com

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. The user assumes the risk to persons or property that arises from any such use of this product.

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.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. May cause sensitization. Avoid contact with eyes, skin or clothing. Avoid inhaling/breathing mist. Wear a long-sleeved shirt, long pants, shoes plus socks, water-proof gloves and NIOSH approved respirator with any N-95, R-95, P-95 or HE filter for biological products when handling, and during all clean-up and repair activities. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

STORAGE AND DISPOSAL:

To prevent contamination, store this product away from food or feed.

STORAGE: Store at room temperature for up to two years from the date of manufacture.

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 alone, or in an alternating spray program with other registered crop protection products. For maximum effectiveness, 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 application equipment.

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 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 hectares to be treated, the recommended label use rate and select appropriate application volume 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 hectareage. Accurate spray equipment calibration is essential prior to use.

PREHARVEST INTERVAL:

Serenade ASO can be applied up to and including the day of harvest and may be applied postharvest on potato prior to storage.

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 provinces/territories have more stringent regulations, they should be observed.

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 washwater.

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 ASO can be applied in commonly used ground application equipment. To achieve good coverage, use the appropriate spray pressure, water volume per hectare, nozzles, nozzle spacing and ground speed. Consult spray nozzle and accessory catalogues for specific information on proper equipment calibration.

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

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DIRECTIONS FOR USE

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	Disease	Rate (litre/ hectare)	Application Instructions
Asparagus	Botrytis blight (<i>Botrytis cinerea</i>)	4.0-15.0	Begin application soon after emergence and when conditions are conducive for disease development. Repeat on 7-10 day intervals.
Crop Group 13: 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.	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.
Highbush blueberry, lowbush blueberry	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)	24.0	Begin applications at the bud break stage of development. Repeat as necessary on a 7-14 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.	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>) Pin rot (<i>Alternaria / Xanthomonas Complex</i>)	8.0-15.0	
Crop Group 6: Legume	Botrytis blight	4.0-15.0	Begin application soon after emergence

Crop	Disease	Rate (litre/ hectare)	Application Instructions
vegetables Bean (<i>Lupinus</i> spp., <i>Phaseolus</i> spp., and <i>Vigna</i> spp.), chickpea, lentil, and pea (all types)	<i>(Botrytis cinerea)</i> Sclerotinia stem rot <i>(Sclerotinia sclerotiorum)</i>	4.0-15.0	or transplant and when conditions are conducive for disease development. Repeat on 7-10 day intervals.
Soybean	Sclerotinia stem rot <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> Frog eye <i>(Cercospora sojina)</i>	1.0-4.0	
Crop Group 3 Crops (Bulb Vegetables) Onions (all types), garlic (all types), leeks, shallots and chives	Botrytis neck rot <i>(Botrytis allii)</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.
	Botrytis leaf blight <i>(Botrytis squamosa)</i>		
	Downy mildew <i>(Peronospora destructor)</i>		
Peanut	Leaf spot <i>(Cercospora arachidicola, Cercosporidium personatum)</i>	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.
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.	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.
Potato	Early blight <i>(Alternaria solani)</i>		
Crop Group 9: Cucurbits	Powdery mildew <i>(Sphaerotheca</i>	5.0-15.0	Begin application soon after emergence or transplant and continue on 7-10 day

Crop	Disease	Rate (litre/ hectare)	Application Instructions
Canteloupe, Chinese waxgourd, cucumber, gherkin, edible gourd, melon, muskmelon, pumpkin, and watermelon.	<i>fuliginea</i> Downy Mildew <i>Pseudoperonospora cubensis</i>		intervals. Use higher rate and lower application intervals under conditions of moderate to high disease pressure.
Tomato, Pepper (bell pepper, chili pepper, pimento and sweet pepper)	Powdery mildew (<i>Erysiphe orontii</i> , <i>Leveillula taurica</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.
	Bacterial spot (<i>Xanthomonas campestris</i>)	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 8: Fruiting vegetables Eggplant, ground cherry, okra, pepino, peppers (all varieties), tomatillo, tomatoes	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.

Crop	Disease	Rate (litre/ hectare)	Application Instructions
Grape	Sour rot (a complex of pathogens)*	5.0-15.0	<p>Gray mould and sour rot: Begin application at bloom, before bunch closure, at veraison and preharvest, up to day of harvest if necessary. Apply in sufficient water to provide full coverage. Serenade ASO may be applied to fruit up to and including the day of harvest</p> <p>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. 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>
	Gray mould (<i>Botrytis cinerea</i>)	5.0-15.0	
	Powdery mildew (<i>Uncinula necator</i>)	9.0-15.0	
<p>Crop Group 4 Crops (Leafy Vegetables)</p> <p>Amaranth, arugula, celery, Chinese celery, celtuce, chervil, corn salad, cress, dandelion, dock, endive, fennel, lettuce, orach, parsley, radicchio, and swiss chard.</p>	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.

Crop	Disease	Rate (litre/ hectare)	Application Instructions
Lettuce	Downy mildew (<i>Bremia lactucae</i>)	7.0-15.0	Begin application when environmental conditions are conducive to disease development and repeat on 7-10 day intervals.
Celery	Pink rot (<i>Sclerotinia sclerotiorum</i>)	5.0-15.0	Pink rot: Begin application approximately 8 weeks before harvest and repeat on 14-day intervals.
Spinach	White rust (<i>Albugo occidentalis</i>)	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.
Strawberry	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.
Crop Group 11: Pome Fruits Apple, Crabapple, Pear, Oriental Pear, Quince, Loquat, Mayhaw, and non-bearing pome fruit trees	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.
	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	Disease	Rate (litre/ hectare)	Application Instructions
Crop Group 12 Crops (Stone Fruits): Apricot, cherry, nectarine, peach, plum, plumcot, and prune	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.
Radish, turnip and rutabaga	Downy mildew (<i>Peronospora parasitica</i>)	10.0	Downy mildew: Begin application when environmental conditions are conducive to disease development and repeat on 7-10 day intervals.

Ground and Aerial Application

Crop	Disease	Rate (litre/ hectare)	Application Instructions
Canola	Sclerotinia stem rot (<i>Sclerotinia sclerotiorum</i>)	1.0-4.0	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.

Aerial Application Instructions

Apply only by fixed-wing or rotary aircraft equipment which 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.

Ensure uniform application by using appropriate marking devices and/or electronic tracking 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.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-728-0014 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 and to the following:

Volume: Apply the recommended rate in a minimum spray volume of 50 liters per hectare.

Post Harvest Disease Protection

Post Harvest Crop	Disease	Rate (mL/tonne)	Application Instructions
Potatoes	Silver Scurf (<i>Helminthosporium solani</i>)	85-175	<p>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.</p> <p><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 conveyer 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.</p>

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