

69592-8

09/13/02

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U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division
(7511C) 401 M St., S.W.
Washington, D.C. 20460

EPA Reg.
Number:

69592-8

Date of Issuance:

9-13-02

NOTICE OF PESTICIDE:

 X Registration
 Reregistration

(under FIFRA, as amended)

Term of Issuance:

Conditional
Time-Limited

Name of Pesticide Product:

Serenade®AS

Name and Address of Registrant (include ZIP Code):

AgraQuest, Inc.
1530 Drew Avenue
Davis, CA 95616-6320

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA Sec. 3(c)(7)(A) provided you:

1. Submit and/or cite all data required for registration/ reregistration of your product under FIFRA section 3(c)(5) and section 4 when the Agency requires all registrants of similar products to submit such data.
2. Comply with all requirements specified in Notice of Registration dated June 20, 2000 of EPA Reg. No 69592-4 Serenade Biofungicide Wettable Powder.
3. Make the following label change listed below before you release the product for shipment:
a.. Replace "EPA Reg No. 69592-I" with "EPA Reg No. 69592-8."
4. Submit five(5) copies of the revised final printed labeling before you release the product for shipment. A stamped copy of the label is enclosed for your records.

This registration will automatically expire on midnight July 1, 2003. EPA will reevaluate this registration before July 1, 2003 to determine whether to convert the registration to a non-expiring registration.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Signature of Approving Official:

Janet L. Andersen, Ph.D., Director
Biopesticides and Pollution Prevention Division (7511C)

Date:

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Serenade® AS

AN AQUEOUS SUSPENSION Biofungicide

ACTIVE INGREDIENT

QST 713 strain of dried *Bacillus subtilis* 1.34%

INERT INGREDIENTS 98.66%

Total 100.00%

Contains a minimum of 1×10^9 CFU/g

EPA Reg. No. 69592-I

EPA Est. No.:

1	2	3	4	5
69592-	67545-	66728-	37429-	69592-
MEX-1	AZ-1	GA-2	GA-2	CA-1

Superscript corresponds to last digit of lot number stamped on container

U.S. Patent Nos. 6,080,051, 6,103,228 and 6,291,426 on QST 713 strain of *Bacillus subtilis*

Net contents: 2.5 gallons [OR 30 gallons OR 110 gallons]

KEEP OUT OF REACH OF CHILDREN**CAUTION****FIRST AID**

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

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

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

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

Harmful if inhaled. Avoid breathing spray mist. Remove contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

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

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

USER SAFETY RECOMMENDATIONS

Users should:

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

ENVIRONMENTAL HAZARDS

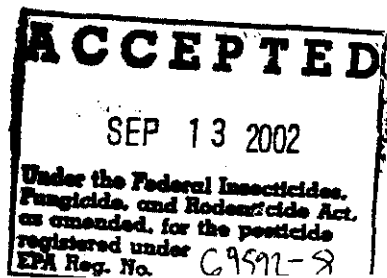
Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not apply when weather conditions favor drift or runoff from treated areas.

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.



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DRAFT Serenade[®] AS page 2**AGRICULTURAL USE REQUIREMENTS**

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

STORAGE AND 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: For 2.5-gallon or 30-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

Serenade[®] AS is a broad spectrum, preventive biofungicide recommended for the control or suppression of many important plant diseases. Serenade AS may be applied as a foliar spray alone, in alternating spray programs or in tank mixes with other registered crop protection products. Serenade AS may be applied with spray equipment commonly used for making ground applications.

INTEGRATED PEST MANAGEMENT (IPM)

Integrate Serenade AS 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. Serenade AS should be applied prior to or in the early stages of disease development. Use maximum label rates and shortened spray intervals for conditions conducive to threatening or 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

Serenade AS can be applied up to and including the day of harvest.

APPLICATION INSTRUCTIONS

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: Do not apply this product by air.

CHEMIGATION: Do not apply this product through any type of irrigation system.

MIXING INSTRUCTIONS

MIXING: Serenade AS is intended for dilution with water for spray application and may be used in spray equipment commonly used for making ground applications. Partially fill the spray tank with clean water and begin agitation. Add the specified amount of Serenade AS to the tank. Finish filling the tank to the desired volume to obtain the proper spray concentration. It is critical that the spray solution be agitated during mixing and application to assure a uniform suspension. Do not allow spray mixture to stand overnight or for prolonged periods. Maintain a spray solution pH between 4.5 and 8.5.

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COMPATIBILITY: Serenade may be tank mixed with other registered pesticides to enhance plant disease control. Do not exceed recommended dosage rates. This product cannot be mixed with any product with prohibition against such mixing. Use of the resulting mix must be in accordance with the more restrictive label limitations and precautions. If the user does not have prior experience with the tank mix combinations, conduct a jar test to determine physical compatibility and test the combination on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a results of application Do not use with penetrant-type adjuvants.

CONDITIONS FOR SALE AND WARRANTY

AgraQuest warrants to those persons lawfully purchasing this product that at the time of the first sale of this product by Seller that this product conformed to its description and was reasonably fit for the purposes stated on the label when used in accordance with Seller's directions. Buyers and users of this product assume the risk of any use contrary to such directions. EXCEPT AS PROVIDED ELSEWHERE IN WRITING CONTAINING AN EXPRESS REFERENCE TO THIS WARRANTY AND LIMITATION OF DAMAGES, SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OR GUARANTY, INCLUDING ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY AND NO AGENT OF SELLER IS AUTHORIZED TO DO SO. To the extent permitted by state law, the Seller's liability for any breach of warranty shall not exceed the purchase price of the material as to which a claim is made.

To the extent permitted by state law, Buyers and users of this product are responsible for all loss or damage from use or handling of this product which results from conditions beyond the control of Seller, or without the fault or negligence of the Seller, or from failure to follow the label.

Serenade® is a registered trademark of AgraQuest.

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Recommended Application Rates for Selected Crops
(Serenade AS has a 0-Day PreHarvest Interval for all crops contained on this label)

Crops	Disease	Rate Qts./acre	Use Recommendations
Apple, Pear	Fire Blight <i>Erwinia amylovora</i>	6 - 8	For suppression begin applications at 1 - 5% bloom and repeat as necessary to protect open, untreated blossoms when conditions favoring disease development are likely to occur. Application of Serenade AS should be made prior to fire blight infection events. During periods of rapid bloom development and frequent infection periods, spray intervals of 3 - 5 days may be required. For apples and pears after petal fall, continue applications at 7-day intervals while environmental conditions favor rapid disease development. Apply in sufficient water to provide full coverage. For improved control, use Serenade in a rotational program with antibiotics registered for fire blight control such as but not limited to oxytetracycline or streptomycin. Proper orchard cultural practices are essential to eliminate fire blight-infected tissue from the orchard to assure good performance of any crop protection product. Care must be taken to remove and destroy dead and diseased wood from the orchard prior to and during the growing season. Use caution when selecting spray adjuvants. Select only those adjuvants which through prior experience do not affect fruit finish when combined with Serenade AS.
	Scab <i>Venturia</i> spp.	6 - 8	For suppression begin applications at green tip or when environmental conditions become favorable for primary scab development. When environmental conditions are conducive to rapid disease development, for improved control use Serenade AS in a tank mix with other registered fungicides on a 7- to 10-day schedule for scab control.
	Powdery Mildew* <i>Podosphaera leucotricha</i>	6 - 8	Begin application at tight cluster, or sooner, if conditions are conducive to onset of disease development. Continue applications through the second cover spray at 7- to 10-day intervals. Additional sprays beyond second cover may be needed on susceptible varieties or when environmental conditions are conducive to threatening or rapid disease development. Use high label rate and shorter spray intervals when conditions are conducive to threatening or rapid disease development.
Broccoli	Pin Rot <i>Alternaria/Xanthomonas</i> complex	3 - 6	For suppression, begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue sprays at 7-day intervals.
Carrot	Black Root Rot/Black Crown Rot <i>Alternaria</i> spp.	2 - 4	Begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue sprays at 7-day intervals or as needed.
	Bacterial Leaf Blight* <i>Xanthomonas campestris</i>	6 - 10	Begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue sprays at 7-day intervals or as needed. Use high rates and shorter intervals when conditions are conducive to threatening or rapid disease development. Apply in sufficient water to provide thorough coverage.
Cherry	Gray Mold <i>Botrytis cinerea</i>	6 - 8	Begin applications when environmental conditions and plant stage are conducive to threatening or rapid disease development. Continue at 7-day intervals.
	Powdery Mildew <i>Podosphaera clandestina</i>	8 - 8	For suppression, begin at popcorn and repeat every 7 days as needed.
Cucurbits	Powdery Mildew <i>Erysiphe</i> spp. <i>Sphaerotheca</i> spp.	4 - 8	Begin applications when environmental conditions and plant stage are conducive to threatening or rapid disease development. Continue sprays at 7-day intervals or as needed.

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Crops	Disease	Rate Qts./ acre	Use Recommendations
Grape	Gray Mold <i>Botrytis cinerea</i> Sour Rot	4 - 6	Make applications at bloom, before bunch closure, at veraison and preharvest, up to day of harvest if necessary. Apply in sufficient water to provide full coverage.
	Powdery Mildew <i>Uncinula necator</i>	4 - 6	Start application when new shoots are 1/2- to 1 1/2- inches long. Repeat when shoots are 3- to 5-inches long, when shoots are 8- to 10-inches long and then at 7- to 10-day intervals until disease conditions no longer exist. Use high rates and shorter intervals when conditions are conducive to threatening or rapid disease development. Apply in sufficient water to provide thorough coverage.
	Downy Mildew* <i>Plasmopara viticola</i>	5 - 8	For suppression, apply at 10-inch shoot then at 7-day intervals until bunch closure (berry touch).
Leafy Vegetables (except Brassica)	Downy Mildew* <i>Bremia lactucae</i> <i>Peronospora</i> spp.	3 - 8	Begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue sprays at 7-day intervals or as needed. Apply in sufficient water to ensure full coverage. When environmental conditions are conducive to rapid disease development, for improved control use Serenade AS in a rotational program with other registered fungicides for downy mildew control.
	Powdery Mildew <i>Erysiphe chichoracearum</i>	3 - 8	For control of Powdery Mildew, begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue sprays at 7- to 10-day intervals or as needed. Apply in sufficient water to ensure thorough coverage.
	Sclerotinia leaf drop <i>Sclerotinia minor</i>	4 - 6	For control of early Sclerotinia leaf drop, apply at planting and prior to emergence of crop as a 4- to 6-inch seed line application. Make a second application within 7 days after thinning. Additional applications should be made at 10- to 14-day intervals if conditions persist. Apply as a directed spray with sufficient water to ensure thorough coverage of lower leaves and surrounding soil surface. Light irrigation a few hours after application to incorporate the product may improve disease control. Note: When applying as a directed spray, do not reduce the per acre rate.
Mint	Rust	4 - 6	Begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue sprays at 7-day intervals or as needed.
Onion, Garlic	Botrytis Neck Rot <i>Botrytis</i> spp.	6 - 10	Begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue sprays at 7-day intervals or as needed. When environmental conditions are conducive to rapid disease development, for improved control use Serenade AS in a rotational program with other registered fungicides for Botrytis neck rot control. Care should be taken to ensure thorough coverage of the entire plant.
Peanut*	Early Leaf Spot <i>Cercospora</i> spp.	4 - 8	Begin applications when environmental conditions are conducive to threatening or rapid disease development. Under heavy disease pressure, for improved control use Serenade in a tank mix with labeled rates of a copper-based fungicide registered for early leaf spot control at labeled rates. Continue sprays at 7-day intervals or as needed. Peanut hay may be fed to livestock.
Pepper	Gray Mold <i>Botrytis cinerea</i>	4 - 8	Begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue sprays at 7-day intervals or as needed.
	Powdery Mildew <i>Oidiopsis taurica</i>	6 - 8	
Potato	Early Blight <i>Alternaria solani</i>	4 - 6	For suppression, begin applications when plants are 4- to 6-inches high. Repeat applications at 5- to 7-day intervals or as needed. When environmental conditions are conducive to rapid disease development, for improved control use Serenade AS in a rotational program with other registered fungicides for early blight control. Use maximum label rates and shorter spray intervals under conditions conducive to rapid disease development.

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Crops	Disease	Rate Qts./ acre	Use Recommendations
Tomato	Early Blight <i>Alternaria solani</i>	4 - 8	For suppression, begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue applications on 5- to 7-day intervals or as needed. When environmental conditions are conducive to rapid disease development, for improved control use Serenade AS in a rotational program with other registered fungicides for early blight control. Use maximum label rates under conditions conducive to rapid disease development.
	Powdery Mildew <i>Leveillula taurica</i>	4 - 8	Begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue applications on 5- to 7-day intervals or as needed. Use maximum label rates under conditions conducive to rapid disease development.
	Bacterial Spot <i>Xanthomonas</i> spp.	4 - 8	For suppression begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue applications on 5- to 7-day intervals or as needed.
	Bacterial Spot <i>Xanthomonas</i> spp.	2 - 4	For control of bacterial spot, use Serenade in a tank mix with a copper-based bactericide registered to control this disease at labeled rates. Begin applications when environmental conditions are conducive to threatening or rapid disease development. Continue applications on 5- to 7-day intervals or as needed.
Walnut	Walnut Blight <i>Xanthomonas campestris</i>	4 - 8	Apply no later than pistillate bloom and repeat at 7- to 10-day intervals depending on orchard disease history and environmental conditions. Make applications in advance of rain for maximum protection. For improved control, use Serenade AS in a tank mix with a copper-based bactericide registered for walnut blight control at labeled rates.

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Recommended Application Rates for Hop
(Serenade AS has a 0-Day PreHarvest Interval for all crops contained on this label)

Crops	Disease	Rate Qts. Serenade AS / 100 gal spray solution	Use Recommendations
Hop*	Powdery Mildew <i>Sphaerotheca macularis</i>	8 - 10	<p>Emergence Through 18 feet of Growth: Apply Serenade AS at 8 to 10 qts. per 100 gallons of spray solution per acre. Adjust the spray solution volume per acre to achieve thorough coverage of the entire vine as recommended below.</p> <p>Application recommendations are as follows:</p> <p>Emergence to Training – Use a minimum of 20 gallons of spray solution per acre.</p> <p>Training to Wire Touch – Use a minimum of 50 gallons of spray solution per acre.</p> <p>Wire Touch Through Harvest – Use a minimum of 100 gallons of spray solution per acre.</p> <p>As soon as side arms develop use 8 to 10 qts. of Serenade AS in a minimum of 100 gallons of spray solution per acre. Coverage will vary with size of vine and type of spray equipment. Use extreme care to provide complete spray coverage.</p> <p>Do not exceed 10 qts. of Serenade AS per acre per application.</p>

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