



SERENADE® PRODUCT INFORMATION

The following document contains information on Serenade. You can access the information by clicking the below topics:

[PRODUCT DESCRIPTION](#)

[CROPS PROFILED](#)

[FEATURES & ADVANTAGES OF SERENADE](#)

[LABELS & MSDS](#)

[FIELD TRIAL DATA](#)

[NOTES FROM THE FIELD](#)

[COMPETITIVE INFORMATION](#)

[SUPPORT INFORMATION](#)

PRODUCT DESCRIPTION:

Serenade Biofungicide is a *Bacillus subtilis* (QST 713 Strain) for prevention of key diseases in vegetables, tree fruit, nut, and vine crops. Serenade was discovered in California by the scientists at AgraQuest, Inc. in Davis, CA. AgraQuest develops, manufacturers and markets natural products for farm, home and public health pest management.

Over 700 field trials on multiple crops have demonstrated the effectiveness of Serenade on a wide range of fungal and bacterial diseases. Serenade is a resistance management tool and uses novel, multiple modes of action to invade and attack disease pathogens. A proprietary fermentation technique contributes to Serenade's performance in preventing diseases. It can be applied as a foliar spray alone, in alternating spray programs, or in tank mix with other EPA registered products.

CROPS PROFILED: Grapes, apples, pears, cherries, walnuts, hops, leafy vegetables, cucurbits, tomatoes, peppers, onions, garlic

FEATURES AND ADVANTAGES OF SERENADE:

Serenade is exempt from residue tolerance and can be applied up to including the day of harvest. Serenade is listed by the Organic Materials Review Institute (OMRI) for use in organic production (Serenade EPA Registration Number 69592-7 only). Serenade can be incorporated into an IPM or a biological control system, as it is non-toxic to beneficial insects and does not cause secondary disease or insect problems. Serenade has a re-entry interval of four hours.

Serenade uses multiple modes of action to invade and attack disease pathogens. Serenade works by first creating an inhibition zone on the leaf, preventing pathogens from attaching. This allows growers to protect the plant prior to disease establishment. Serenade stops pathogen growth by outcompeting for nutrients and space on the leaf. Also, Serenade's bacterial cells and lipopeptides destroy germ tubes and mycelium membranes. The result is control of key disease pathogens with a unique product.

Refer to Serenade labels for application rates and use recommendations in the following crops and diseases:

Grape	Powdery Mildew <i>Unicinula necator</i> Bunch Rot <i>Botrytis cinerea</i> Sour rot
Apple, Pear	Fire Blight <i>Erwinia amylovora</i> Powdery Mildew <i>Podosphaera leucotricha</i>
Cherry	Powdery Mildew <i>Podosphaera clandestine</i>
Walnut	Walnut Blight <i>Xanthomonas campestris</i>
Hop*	Powdery Mildew <i>Sphaerotheca macularis</i>
Leafy Vegetables (except <i>Brassica</i>)	<i>Sclerotinia</i> Leafdrop Powdery Mildew <i>Erysiphe chichoracearum</i> Downy Mildew <i>Bremia lacucae</i> <i>Peronospora</i> spp.
Curcubits	Powdery Mildew <i>Erysiphe</i> spp. <i>Sphaerotheca</i> spp.
Tomato*	Bacterial Spot <i>Xanthomonas</i> spp Early Blight <i>Alternaria solani</i>
Pepper*	<i>Botrytis cinerea</i> Powdery Mildew <i>Oidiopsis taurica</i>
Onion*, Garlic*	<i>Botrytis</i> Neck Rot <i>Botrytis</i> spp.
*Not for use in California	

ADVANTAGES OF SERENADE:

- Controls bacterial and fungal diseases in vegetables, tree fruit, nut and vine crops
- Compatible with other registered products
- Resistance management tool
- 0-day PHI
- Use in organic and/or conventional production (Serenade EPA Registration Number 69592-7 only)
- 4-hour re-entry
- Compatible with IPM programs
- Can be stored at ambient temperature and has a shelf life of a minimum of 2 years

LABELS AND MSDS:

http://www.agraquest.com/prod_frames.html

FIELD TRIAL DATA:

http://www.agraquest.com/prod_frames.html

NOTES FROM THE FIELD:

“Most products in the marketplace either have to be used for powdery mildew or bunch rot. That makes *Serenade* a very good component of integrated pest management. It can be used either alone or certainly as part of an integrated approach with other products. One attribute I have to mention about *Serenade* is that it’s based on a different active ingredient and therefore has a different mode of action than other products in the marketplace.”

*Phil Grau, independent researcher, agricultural biologist and entomologist
Fresno, Calif.*

“We encourage the use of any pest management tools that are safe to the environment and to humans. *Serenade* probably has a fit in this area. Because it is a biological pesticide, *Serenade* has a fit in an integrated management programs for powdery mildew in wine grapes.”

*Joe Browde, project coordinator
California Wine Grape Pest Management Alliance, Petaluma, Calif.*

“Based on what we’ve seen it looks like *Serenade* is going to be a very useful tool as part of our resistance management program. It seems to be very effective in eliminating certain fungi, and we’re looking at it as control of botrytis and different summer rots.”

*Carl Pimentel, farm manager
Gary Pitts Farms, Kingsburg, Calif.*

COMPETITIVE INFORMATION:

Pesticide manufacturers, in conjunction with the Fungicide Resistance Action Committee, has developed management guidelines to prevent resistance. Key to their plan is rotating products with different modes of action and effective disease management. Botrytis in grapes (*Botrytis cinerea*) is termed "high risk," meaning the potential to develop fungicide resistance is high. *Serenade* offers novel, multiple modes of action in attacking and destroying disease pathogens. *Serenade* is a natural alternative in resistance management programs with products such as Vanguard. The Sonoma Country Grape Growers Association recommends “if growers are using an early season treatment program for *Botrytis*, remember to alternate materials. Do not use multiple applications of the same material. Resistance to Vanguard has developed in some areas. Rotate your botrytis materials to keep that from happening here.” *SCGGA IPM Meeting Notes: May 2001 Grower Appellation Meeting notes*

The timeframe for use cancellation and phasing out sales and distribution of Ronalin (vinclozolin) is July-November 2005. Serenade is an alternative fungicide for Ronalin in managing lettuce diseases.

SUPPORT INFORMATION:

For the below support items please call Manish Prasad @ (530) 750-0150 x 112.

Serenade Crop Reference Sheets

PUBLISHED ARTICLES:

Western Fruit Grower 4.20.01

Crop Protection Manager 06.04.01