



# SERENADE® FUNGICIDE: POTATO

Serenade® OPTI and Serenade® ASO fungicides are powerful tools designed to protect against foliar and rhizospheric bacterial and fungal diseases.

## PERFORMANCE

The active ingredient in Serenade fungicides, *Bacillus subtilis* strain QST 713, is a beneficial bacterium. The product contains live active spores and bioactive compounds produced during fermentation of the strain. The bacteria in Serenade act as small factories around the roots, producing bioactive compounds in addition to those already in the products. Serenade provides three different effects important for healthy, high-yielding plants.

- 1. Pathogen protection** – Lipopeptides destroy fungi on contact, while other compounds kill bacteria
- 2. Activates plant defenses** – Plants respond to lipopeptide contact by preparing to repel pathogens
- 3. Stress reduction** – Serenade stimulates the plant to better tolerate stressors like drought and heat

## General Information

- Pre-harvest interval: 0 days
- Re-entry interval: 4 hours
- Flexible application: Can be applied by ground, air or chemigation
- Integrated disease control: Can be used in combination with other fungicides such as Luna Tranquility® for enhanced disease control
- Tankmix compatibility: Numerous registered products including insecticides, fungicides, copper, sulfur, micronutrients and liquid fertilizers

## Key Benefits

### Soil – Serenade ASO only

- Directly attacks diseases in the soil including *Rhizoctonia*, *Fusarium*, *Phytophthora*, *Sclerotinia* and other pathogens
- Induces the plant to protect itself from soil and foliar diseases
- Improves tuber consistency and yield through greater plant health and nutrient access
- Apply using existing spray, drench or chemigation equipment

### Foliar – Serenade OPTI and Serenade ASO

- Unique mode of action (FRAC Code 44) for defense against the development of resistance
- Exempt from residue tolerance for export to global markets, providing growers with additional solutions to manage the requirements of the global food chain

Registered Crops	Rate	Diseases
Root/Tuber and Corm Vegetables Carrots Potatoes Sweet Potatoes Beets Turnips Other root/tuber and corm crops (including those grown for seed production)	ASO 2 to 4 qt./A      OPTI 14 to 20 oz./A	<i>Alternaria</i> Species White Mold Aerial Stem Rot <i>Erwinia</i> <i>Phytophthora</i> <i>Pythium</i> <i>Rhizoctonia</i> <i>Verticillium</i>  <i>Alternaria</i> Species White Mold Aerial Stem Rot <i>Erwinia</i>

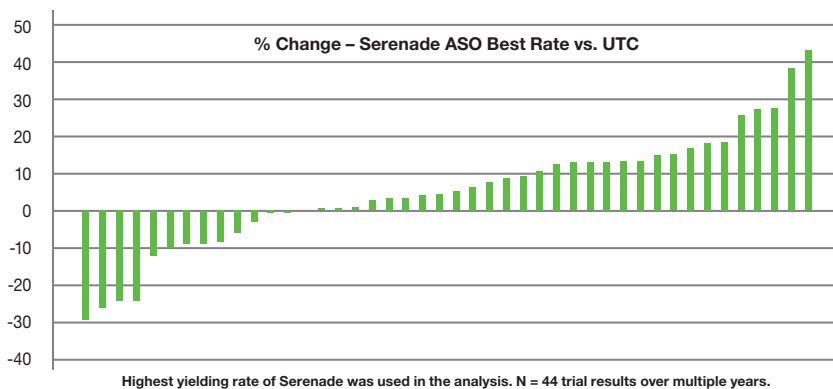




## YIELD

Using Serenade® fungicides helps improve profitability by protecting the plant from diseases and preventing damaging effects from stress, thereby increasing yield. Field trials and grower demos show disease control and yield increases across a large variety of crops including legumes, root and tuber vegetables and fruiting vegetables.

### Seventy Percent of Trials Over Multiple Years Show Serenade® ASO Soil Application at Plant Positively Impacts Potato Tuber Yield

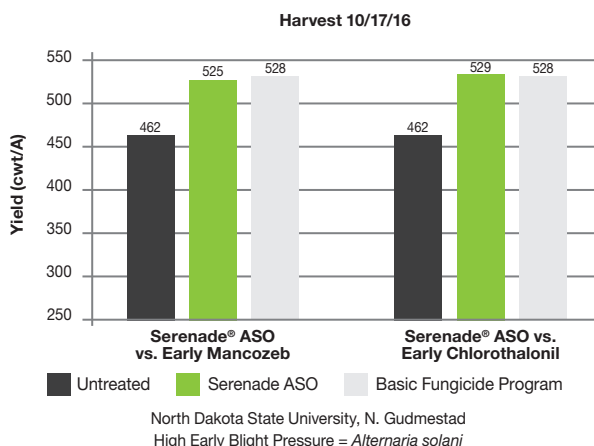


Avg. increase across all trials = 5.4%

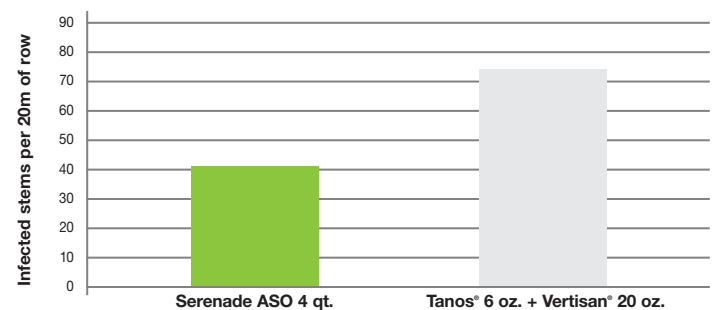
Serenade ASO yielded higher than the UTC  
70% of the time by an average of 12.8%

Serenade ASO yielded less than the UTC  
30% of the time by an average of 12.3%

### Substituting Serenade® ASO for Two Early-season Mancozeb or Chlorothalonil Applications Does Not Negatively Impact Disease Control or Yield



### Serenade® ASO Provides Reduction of *Erwinia*/Bacterial Stem Rot on Potatoes



D. Johnson, Prosser, WA – 2012, *Erwinia* spp. Materials were applied post flowering via overhead, pivot irrigation in mid-July, then the irrigation water was shut off for 24 to 36 hr. One-half of the field was treated with Serenade ASO and the other with the competitive standard. Sampling was ten 2-meter subplots per treatment. 1201219

Field 1 – Cultivar: Russet Burbank, Carr Farms, East Pasco, WA. Treatments: Serenade (4 qt./A) vs. Tanos + Vertisan (6 oz. + 20 oz./A). Design = Split Circle. Evaluation: August 7, 2012. Serenade: Number of infected stems/20m of row = 41. Tanos + Vertisan: Number of infected stems/20m of row = 74. Comments: The section of the field with Tanos + Vertisan had more canopy growth which may favor bacterial stem rot development.

**IMPORTANT:** This bulletin is not intended to provide adequate information for use of these products. Read the label before using these products. Observe all label directions and precautions while using these products. Not registered for use on all crops in California.

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