

Biofungicides

	Serenade	Regalia	Double Nickel 55
Active ingredient	QST 713 strain of <i>Bacillus subtilis</i>	Extract of <i>Reynoutria sachalinensis</i> (knot weed)	<i>Bacillus amyloliquefaciens</i>
Targets	Wide range of soil and foliar bacterial and fungal diseases	certain soil and foliar fungal and bacterial diseases (preventative)	Broad spectrum suppression of fungus and bacterial plant diseases
Mode of action	<ul style="list-style-type: none"> - Builds a disease-protection zone around the seed or transplant. Beneficial bacteria attach themselves like armor to the roots of the plant. - Directly attacks diseases and other pathogens - Activates plant's natural defenses by inducing systemic responses in the plant 	Contains bioactive compounds. The extract, when applied to the host plant, activates the plant's defense system to increase phenolics and antioxidants, and strengthen cell walls. This mode of action is classified as induced systemic resistance	The bacteria will colonize roots, leaves and other plant surfaces preventing establishment of disease-causing fungi and bacteria.
Re-entry period	4 hour	4 hour	4 hour
Pre Harvest interval	0 day	0 day	0 day
How to apply	Foliar/ soil drench	Foliar, plant dip, soil drench, in-furrow spray, or applied through drip irrigation	Ground, aerial, chemigation
Av Price/gal (per pound)	\$38 (qts~\$68/gal)	\$70/gal	\$31.40/lb
Application rate	2oz-4oz/gal	1.3 – 2.6 tablespoons (0.64 – 1.28 fluid ounces) /gal	0.0025 – 0.03 lbs/gal foliar 0.00125 – 0.01 lbs/gal soil drench
Price/diluted gallon	\$0.59-\$1.19 (qts: \$1.06-\$2.13)	\$0.71 - \$1.42	\$0.08 - \$0.94 foliar \$0.04 - \$0.31 soil
Tank mixing	Can mix with coppers	Compatible with many commonly used pesticides, fertilizers, adjuvants, and surfactants, but has not been evaluated with all potential combinations.	Tank mix with spray oil or copper based fungicide at labeled rates

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Extra details	1. Lipopeptides destroy fungi on contact, other antibacterial compounds attack bacteria. 2. Lipopeptides trigger metabolic pathways within the plant that heighten its ability to defend itself as it grows. . Serenade ASO produces important chemicals that modulate plant growth and combat plant stressors like salinity, drought and heat.	When applied to crops, product activate ISR and induce the plants to produce specialized proteins and other compounds—phytoalexins, cell strengtheners, antioxidants, phenolics, and PR proteins—which are known to inhibit fungal and bacterial diseases and also improve plant health and vigor.	

To ensure compatibility of the tank mix combinations, evaluate prior to use as follows: Using a suitable container, add the proportional amounts of product to water. Add wettable powders first, then water dispersible granules, then liquid flowables, and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the mix on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of the application.