



Product Guide



Introduction

Serenade Soil Activ

Serenade® Soil Activ contains fast-acting spores of *Bacillus amyloliquefaciens* (strain QST 713). These spores are effective on a wide range of crops and soils forming a symbiotic relationship that can improve plant nutrient availability and soil health.

It was developed using a unique fermentation process for soil application only. Despite it being an identical strain to Serenade Prime, it colonises young roots earlier due to different germination proteins on the spores.

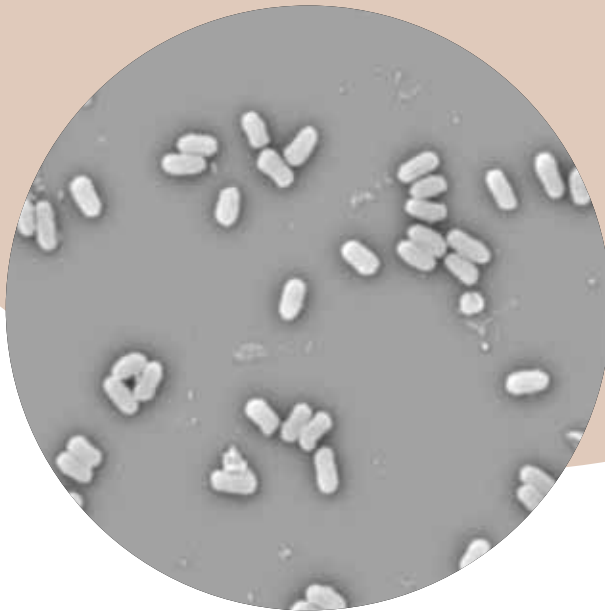
The specialised soil ameliorant formulation of Serenade Soil Activ can provide improved:

- Early root development
- Nutrient uptake and root architecture
- Ease of application

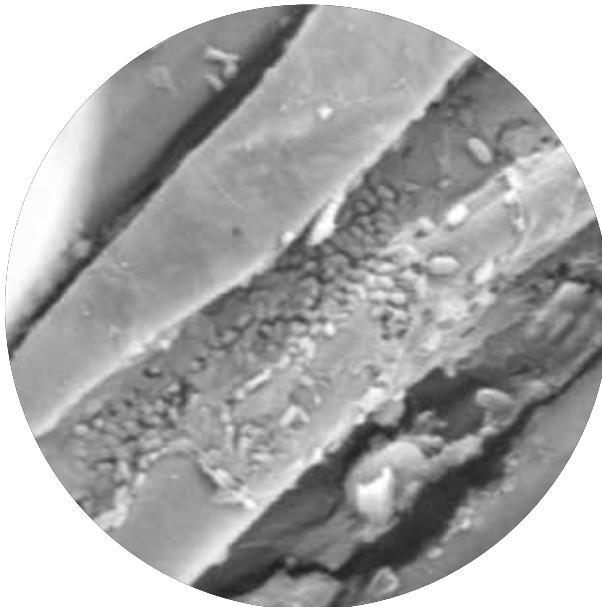


Unique fermentation process development, California.





Fast acting spores rapidly colonise.



Early colonisation on banana roots.



Early colonisation on corn roots.



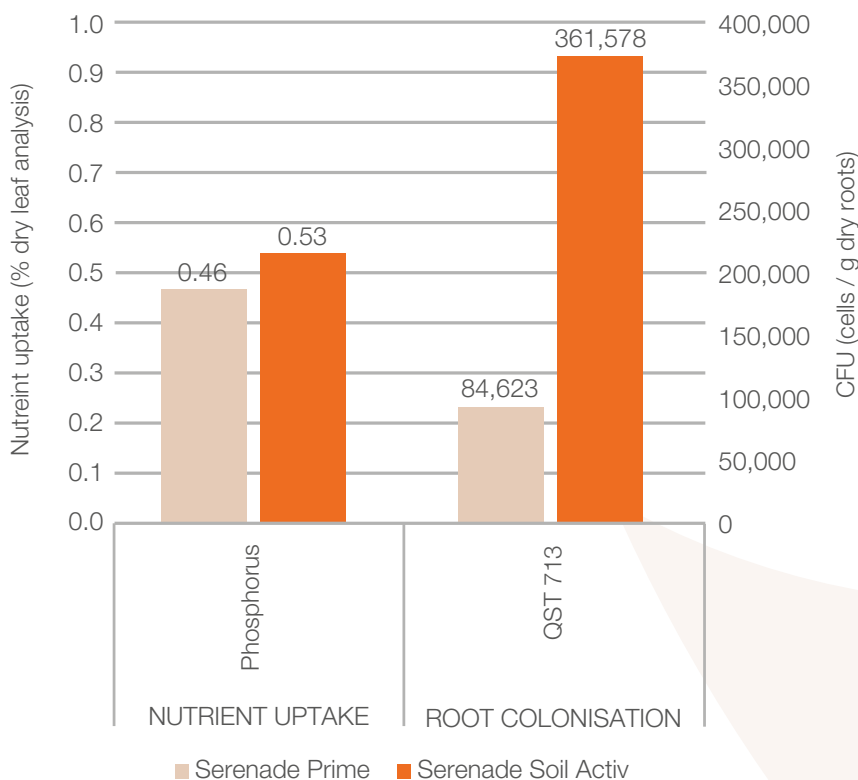
Early Root Development

Serenade® Soil Activ has shown that its early colonisation can result in improved soil amelioration, consequently providing improved root development in a range of crops. Earlier colonisation maximises the potential to build a supply of plant available nutrients, such as phosphorus. Colonisation results in release of organic acids which can mobilise phosphorus into a plant-available form assisting rapid early root development.

Green Beans

BOWEN, QLD

2 weeks after application



+15% phosphorus uptake

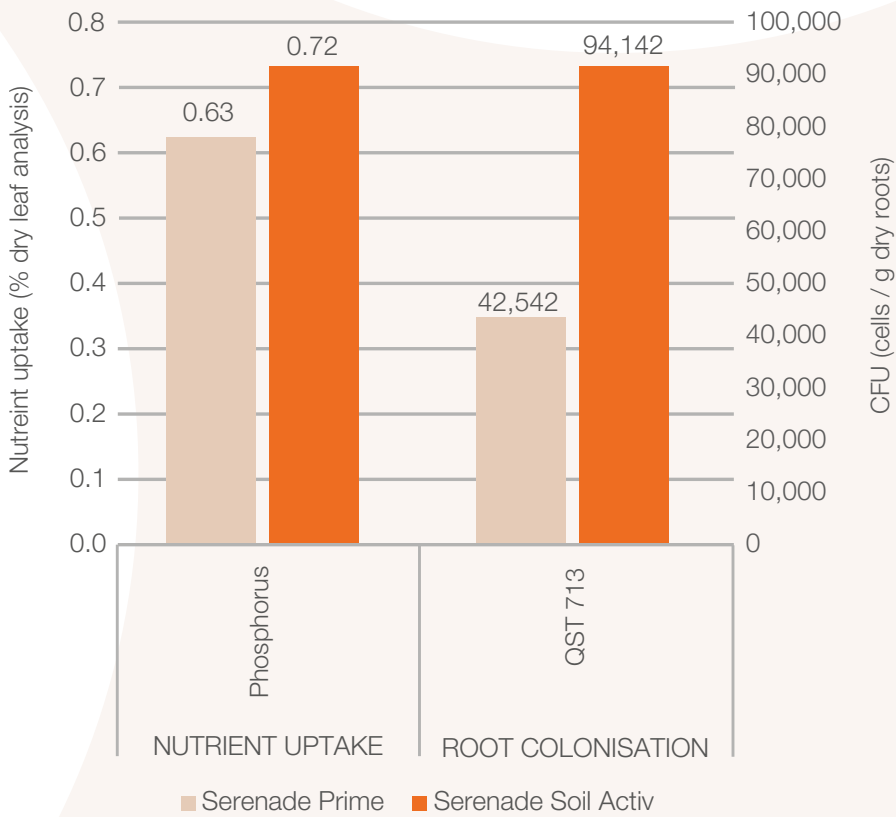


TRIAL ID: 21QF02

Tomatoes

BOWEN, QLD

4 weeks after application



TRIAL ID: 21QF01



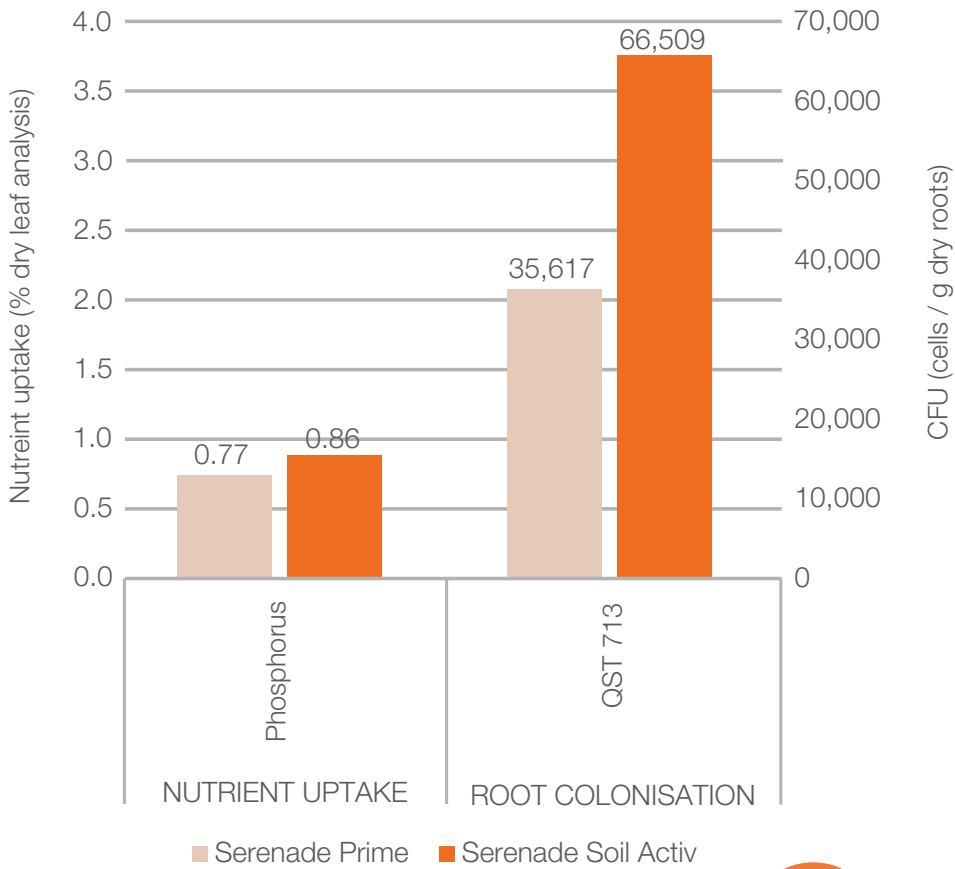
**+14%
phosphorus
uptake**



Potatoes

LOCKYER VALLEY, QLD

7 weeks after application



TRIAL ID: 21QF04

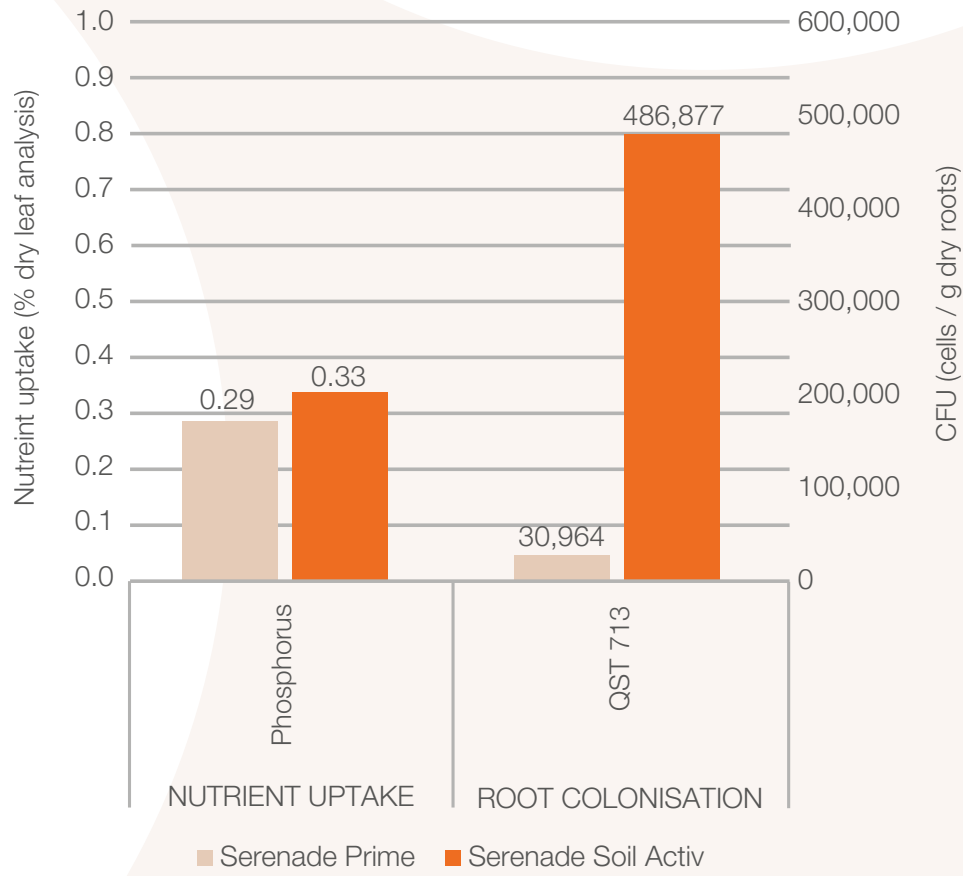
+12%
phosphorus
uptake



Onions

KINDRED, TAS

15 weeks after application



TRIAL ID: 21D002

**+14%
phosphorus
uptake**



Serenade Soil Activ | Serenade Prime



Nutrient Uptake and Root Architecture

Lettuce

GATTON, QLD

Serenade® Soil Activ improved the nutrient uptake in iceberg lettuce. It improved uptake of calcium (38%), magnesium (44%), iron (25%), manganese (67%) and boron (22%) when applied at transplanting. It resulted in a greater root surface area with a finer root pattern. Total leaf biomass also increased by 13%.



Untreated



Serenade Soil Activ 1.4 L/ha



TRIAL ID: 21QF06





Blue Agave

NORTH QLD

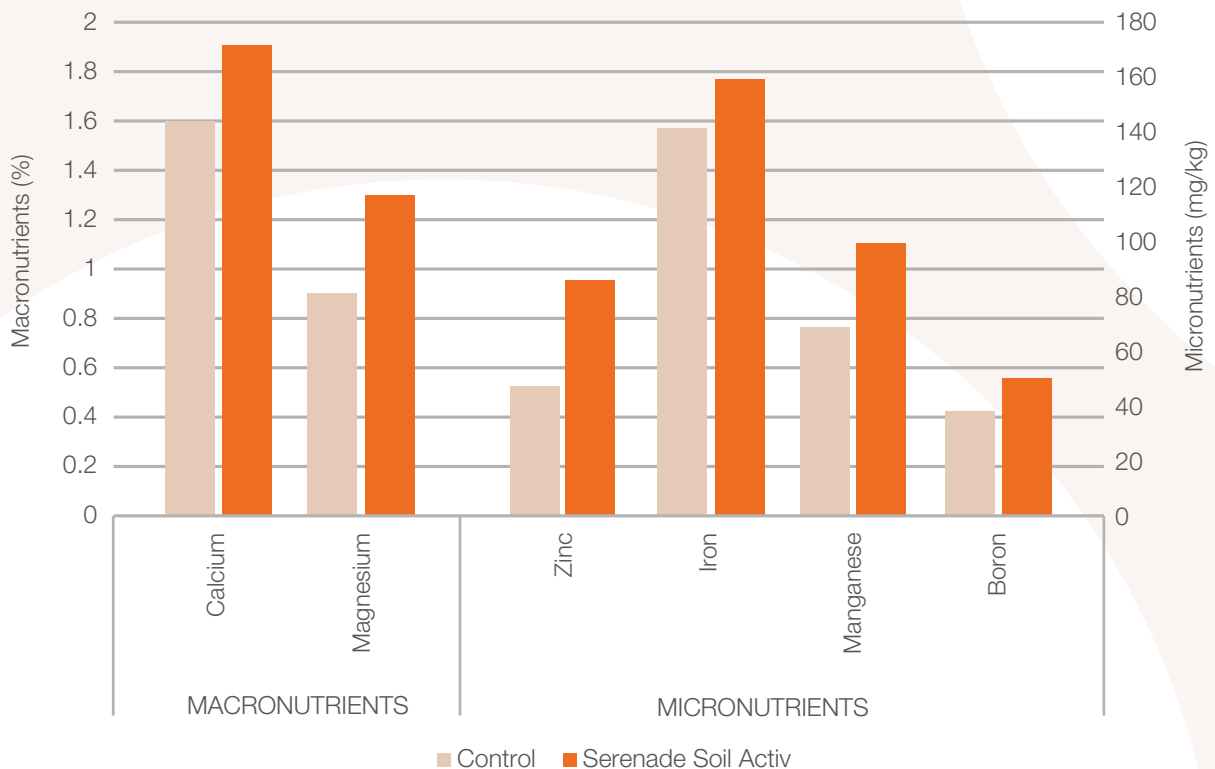
Improved nutrient uptake has been shown on perennial crops such as blue agave. It improved uptake of calcium (19%), magnesium (43%), zinc (75%), iron (14%), manganese (49%) and boron (35%) when applied at transplanting. It resulted in greater root surface area and longer roots. qPCR analysis showed colonisation up to 20 weeks after application.



Control



Serenade Soil Activ 1.6 L/ha



TRIAL ID: 21QF03

Ease of Application

Serenade® Soil Activ has a low use rate allowing easy on-farm application. The formulation contains a high concentration of fast-acting spores which have excellent tank mix compatibility. The refined liquid formulation allows good flowability even through finer mesh filters. There is no need for refrigeration given the robust nature of the spores.



Low use rate and less handling



Improved tank mix flexibility

Application Rates

CROP	PURPOSE	RATE	CRITICAL COMMENTS
Vegetable crops, berries, and other small fruits, row crops	Serenade SOIL ACTIV is a ready-to-use formulation of the highly active QST 713 strain <i>Bacillus amyloliquefaciens</i> for application to soil to improve bioavailability of soil resources for agricultural and horticultural crops	1 - 2 L/ha	<p>Plant hole drench at transplanting: Apply the selected volume of drench mixture in the planting hole. Mix with sufficient water to allow a consistent volume to be applied to each plant (e.g. 50 mL of drench mixture per plant).</p> <p>In-furrow application (direct sown): Apply as an in-furrow spray in the required amount of water per hectare for the crop at planting. Mount the spray nozzle so the spray is directed into the furrow just before the seeds or seed pieces are covered.</p> <p>Drip irrigation: Apply product with the first irrigation after transplanting. Repeat applications may be made every 21 – 28 days depending on crop and growth rate.</p> <p>Soil surface boom spray: Apply after sowing or transplanting at the start of active root growth. Use irrigation or rainfall to incorporate the product into the root zone.</p>
Tree crops		7 mL/tree	<p>Drip or micro-sprinkler irrigation or soil drench at root flush: Apply spray mixture to the surface of the soil at root flush (just prior to vegetable flush) through micro sprinkler, drip irrigation or soil drench system. Apply a sufficient quantity of irrigation to reach the root zone. In high density plantings do not exceed 2 L/ha of Serenade SOIL ACTIV.</p>
Bananas		0.4 – 1 mL/plant	<p>Micro-sprinkler irrigation or soil drench at root flush: Apply a sufficient quantity of irrigation to reach the root zone. Do not exceed 2 L/ha of Serenade SOIL ACTIV.</p>
Newly established tree, vine and berry crops		0.4 – 2 mL/plant	<p>Drip or micro-sprinkler irrigation or soil drench: Apply a sufficient quantity or irrigation to reach the root zone. In high density plantings do not exceed 2 L/ha of Serenade SOIL ACTIV.</p>



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