



Case Study

Root Growth Stimulators Effect on Sugarcane Nutrient Uptake



LANDHOLDER	PCCCF2022BAV42
LOCATION	Home Hill
CATCHMENT	Burdekin
RAINFALL	952.9mm
PROPERTY SIZE	95Ha
ON-GROUND PROVIDER	Burdekin Productivity Services

Project Catalyst is a grower led, sugar cane innovation and adoption project that explores, develops and validates farm management practice change to improve the enduring water quality of the Great Barrier Reef.

BROADER ADOPTION VALIDATION & GROWER SUPPORT

Founded in 2009, the project operates in the Mackay Whitsunday, Burdekin and Wet Tropic regions to deliver valued practice change outcomes and develop methods for industry adoption. Under the Broader Adoption and Grower Support program, professional on-ground service providers assist selected growers to adopt and validate appropriate change practices. Service providers continue to monitor implementation benefits and derived environmental performance improvements. Through targeted extension activities, the program seeks to accelerate the uptake and broader adoption of improved farming practices at local, regional and industry levels.



Paddock in October 2022



Young plant cane in Bacstim + Rhizovator treatment



Great Barrier Reef Foundation



●●●● Goal

To investigate whether Bacstim 100 in combination with Rhizovator OB can increase nutrient uptake and overall soil health. And secondly to see if varying nitrogen rates will affect cane yield.



●●●● Overview

David Fowler grows sugarcane in the Home Hill area of the Burdekin. He farms around 95Ha and is interested in improving his soil health and optimising his cane's ability to uptake nutrients. He is also interested to see if different nitrogen rates will effect his cane production with or without the root stimulators.

Bacstim and Rhizovator are claimed to work by enhancing the root structure of the crop through introduction of beneficial microbes and biostimulants.

Irrigating the practice change block

●●●● Action

The block was planted in August 2022, shortly after harvesting his last ratoon crop. A soil sample was taken to assess his current nutrient requirements as nitrogen was also a matter of investigation. We decided to have eight plots of root stimulants and eight plots of no root stimulant application. Within these plots we would have a Six Easy Steps replant nitrogen rate, a Six Easy Steps plant nitrogen rate and an even lower nitrogen rate as the last treatment. All treatments were replicated three times and randomly placed across the block to ensure block variation was accounted for.

The root stimulants were applied at planting to the appropriate plots and billets were dug up a week after planting to assess early root growth. Plants were also dug up at two months old to assess the root structure and to collect biological samples.

CCS, Tonnes of cane and Tonnes of sugar will be assessed once the crop is harvested in 2023.

●●●● Outcome

In the young billet digs, there was no noticeable difference between the treated and non treated plots. When cane was dug up at two months old, there was no visible difference between the treatments, however, in the root stimulator treatments there were visible signs of fungi forming in the soil around the roots in some plots.

David is eagerly waiting for the 2023 harvest results to make an informed decision on his farm. Even prior to obtaining these results, he has applied the combination of the two products onto two different varieties of ratoon cane to see if it may effect different varieties of sugarcane. As the farm is irrigated, an early estimate of baseline Water Use Efficiency (WUE) based on 130t yield, 450mm of effective annual rainfall and 15ML/ha of irrigation per season is 0.15ML/t. This will be confirmed once a full season of irrigation water use data is collected.

David has also achieved BMP accreditation in soil health & nutrient management, irrigation & drainage, and weed pest & disease management core modules.



Mycelial growth in Bacstim + rhizovator treatment

