



# Case Study

## Improving Soil Health Through Green Waste and Mill Mud Amelioration and Cropping Soybeans



<b>LANDHOLDER</b>	Mark Franettovich
<b>LOCATION</b>	Giru
<b>CATCHMENT</b>	Burdekin
<b>RAINFALL</b>	948mm
<b>PROPERTY SIZE</b>	64ha
<b>ON-GROUND PROVIDER</b>	BPS

**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.



Soybean nodules



Soybean growing on green waste treatment



Great Barrier Reef Foundation



●●●● Goal

To investigate the potential use of green waste, mill mud and a mixture of green waste and mill mud as a soil ameliorant and the soil health benefits it can have.



Green waste truck applicator

●●●● Overview

Mark's farm is located on the banks of the Haughton River near Giru. He was interested in the use of city council green waste and mill by-products to help improve his soil health

Mark was part of an existing trial through SRA, BPS and the Burdekin and Townsville City Councils. Soybeans were also of interest to Mark and these were planted over all of the treatments. Thanks to SRA we were able to obtain biological samples to observe the difference between treatments as the trial progressed.



Earthworms in green waste treatment

●●●● Action

The trial was set up in December 2019 where four treatments were applied. These were:

1. Green waste at 96T/ha
2. Mill mud at 80T/ha
3. Green waste and mill mud at 30T/ha
4. Control

The ameliorants were applied with a walking floor and spreader which were sub-surface applied. A6785 soybeans were planted a few weeks later and in April 2020 harvested for grain. Cane was then planted in May.

Biological samples were taken in each of the treatments, one set was taken as a baseline, another set taken during legume growth and another set taken when cane was planted.

●●●● Outcome

In regards to the fungal biomass results we saw that the control stayed relatively constant from the legume to cane sample so this indicates that the treatments are having an effect. Some of the treatments decreased after the initial baseline test, this could be due to the tillage that was required to establish the trial which will obviously disturb the fungal community. There was a huge boost in the green waste, however this was short lived as it came back down in the next lot of sampling. Overall the fungal biomass increased from the combination of green waste/ mill mud mix along with mill mud on its own.

In regards to the total microbial activity, the baseline test was much lower than all of the treatments. There was a steady increase in the green waste/mill mud mix and mill mud on its own which is similar to what occurred in the fungal samples. Overall we have seen the microbial community increase.

