



Case Study

Mixed Legume Species in Fallow and N Fertiliser Reductions in Ratoons



LANDHOLDER	CSLH010023
LOCATION	Toobanna
CATCHMENT	Lower Herbert
RAINFALL	2022 - 2057mm 2023 - 1877mm
PROPERTY SIZE	470ha
ON-GROUND PROVIDER	HCPSL

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.



Great Barrier Reef Foundation



●●●● Goal

- To review and update the farm nutrient management plan, considering how reductions in fertiliser application rates might be possible for simultaneously maintaining yields and reducing costs.
- To trial mixed species fallow crops to improve soil health condition.



A healthy legume soil showing nodulation and beneficial arthropods

●●●● Overview

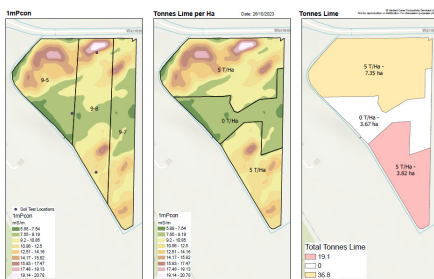
- Mixed species cover-crops are a key management approach for improving soil health in sugarcane fallow periods. In addition to providing ground cover, mixed species legumes are adept at improving organic matter, capturing soil carbon, and suppressing weed growth for improved soil health. The grower trialed mixed legumes once several years ago but had left the practice after they had significant symphylla impacts following the legumes. They want to explore using legumes again with a different management approach.

●●●● Action

- Fallow blocks suitable for legume application will be selected and an appropriate mix of species with potential biofumigant potential will be selected to help control soil pathogens.
- The grower will receive a full nutrient management plan for their farm which takes into account soil test results, productivity data, and grower knowledge and management approaches to determine nutrient rate requirements across differing management zones, allowing the grower to be more targeted in their applications.

●●●● Outcome

- The grower received their Nutrient Management Plan. As part of the plan the grower reduced nitrogen in their late ratoons by 10kg N/ha.
- Poor weather conditions restricted the grower from planting legumes across ploughout blocks in late 2023. The grower now has a bean planter and intends to plant legumes in their fallow.
- In 2023 the grower also took up the opportunity to EM map a number of blocks where cane was patchy. The EM maps identified several areas of constraint which the grower addressed with zonal ammendments and low rates of mill-by products. This enabled a cost saving while simultaneously improving the soil condition for their plant crop and subsequent ratoons in the coming season which will result improved productivity and profitability.



Growers zonal ammendment map

