PROJECT CATALYST

Case Study

Precision Nutrient Planning, Sub-surface Amelioration and Legume Rotations

LANDHOLDER	Grant Matsen
LOCATION	Sarina
CATCHMENT	Alligator creek
RAINFALL	1600mm
PROPERTY SIZE	92ha
ON-GROUND PROVIDER	Farmacist Pty Ltd Author: Jess Bennett

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 bene its 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.

Fig.1 Alan Matsen (Grant's father) on sub surface application trial site

Fig.2 Mill mud being applied under the surface of the bed

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Goal

To improve soil health, increase farm profitability and reduce impacts on the environment by adopting the integrated practices of precision nutrient planning, sub-surface amelioration and legume rotations.

Fig.3 Grant Matsen Soybean Crop

Overview

Grant Matsen was seeking accurate information to help him determine areas of his farm requiring intervention to increase yield potential, primarily due to soil constraints.

Variation in topography, soil characteristics and soil moisture can be significant across and within paddocks. Electromagnetic (EM) survey is a precision technology used to identify and map these changes. They support growers to make decisions on where and what inputs, or management strategies, are needed to increase production and profitability without impact to the environment.

Fig.4 Grant Matsen aims to increase WUE

Action

Farmacist conducted an EM38 survey to spatially identify the best location for nutrient testing. Sampling was undertaken to reflect the diversity of soil characteristics determined by the survey.

In consultation with Grant, agronomists used the EM map, nutrient results, historic yield and management data to develop a precision nutrient budget and assist him to identify further legume cropping sites.

By incorporating legume crops into his farming system, Grant was able to reduce his N fertiliser inputs by up to 100kgN/ha and his history of mill mud use reduced his need for phosphorus fertiliser in many areas.

Grant is currently investigating the benefits of sub surface mill mud application on his duplex soils to improve water holding capacity and therefore increase water use efficiency (WUE).

Outcome

Farmacist has supported Grant to investigate a number of integrated management practices that have combined to improve his soil health and reduce his nutrient inputs without impact to his overall farm yield. This has delivered profitability gains.
EM mapping assisted Grant to make informed decisions about his nutrient applications and identify areas most requiring intervention to optimise yield.

Legume crops have provided Grant with an alternative income, whilst reducing his N fertiliser input costs for the following plant cane. If economic and WUE benefits can be demonstrated, Grant will expand his sub surface application practices.
These practices all mitigate nutrient, water and soil loss from Grant's farm.

For further information contact
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