



Case Study

Using Electromagnetic (EM) Mapping Technology to Tailor Soil Management Decisions



LANDHOLDER	John, Helen, Dean and Tony Pastega
LOCATION	Eton, Marian and Brightley
CATCHMENT	Sandy Creek
RAINFALL	1600mm
PROPERTY SIZE	900ha
ON-GROUND PROVIDER	Farmacist Pty Ltd Author: Zoe Eagger

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.

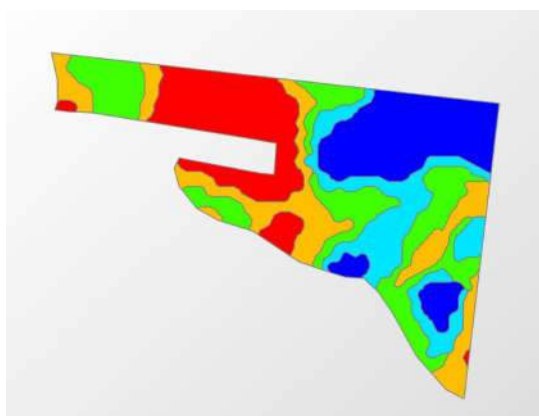


Fig.1 One of the Pastega's EM maps demonstrating paddock variability



Fig.2 Dean, Helen & John Pastega.



Great Barrier Reef Foundation



●●●● Goal

To use information provided by EM survey maps to develop recommendations that result in precision application of soil ameliorants and fertilisers.



Fig.3 Variable rate lime recommendation map produced from an EM map

●●●● Overview

Precision use of inputs results in greater profit and reduced loss to the environment.

Variability in topography, soil type, soil moisture and soil health characteristics can be significant within a paddock. This is most often reflective in yield outcomes. Lower yield performance can be due to factors such as soil sodicity, acidity, poor drainage and pest/disease hotspots.

EM survey maps indicate changes in soil type and soil moisture by measuring electro-conductivity (EC). They are then interpreted to prepare site specific management and variable rate recommendations.



Fig.4 Topsoil mapper (TSM) used by Farmacist to identify variability & constraints.

●●●● Action

Farmacist undertook an EM survey across a majority of paddocks on the Pastega's sugarcane operation.

Each season the family meets with Farmacist agronomists to determine those management areas where soil ameliorants, mill mud and fertilisers will be applied and the precision rates required.

A variable product and rate application map is produced that reflects variability across paddocks, identified by the EM survey maps.

●●●● Outcome

EM maps provide Farmacist and the Pastega's with precision information required to match product application rates with variable paddock yield potential. The benefits the Pastega's claim are reduced input costs, increased yield from more targeted management and a better understanding of why certain areas of the farm have yielded poorly due to soil constraints and seasonal conditions.

By better matching inputs to yield potential across paddock areas, efficiencies are optimised and losses to the water catchment are greatly reduced.

In 2021 the Pastega's are participating in Farmacist's new precision agriculture project that will use EM data, among other datasets, to further refine their soil management practices.

For further information contact Zoe Egger (Farmacist) Mb. 0436 004 437.

