



# Case Study

## Mixed Legumes and EM Mapping for Variable Inputs

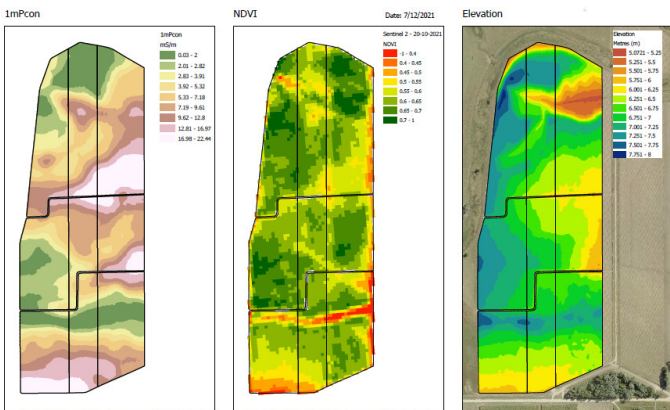


<b>LANDHOLDER</b>	CSLH010010
<b>LOCATION</b>	Blackrock
<b>CATCHMENT</b>	Lower Herbert
<b>RAINFALL</b>	2022 - 1600mm 2023 - 1695mm
<b>PROPERTY SIZE</b>	166ha
<b>ON-GROUND PROVIDER</b>	HCPSL

**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.



EM, NDVI and Elevation for a block that show differing constraints.



After harvest the block will be ready for EM mapping

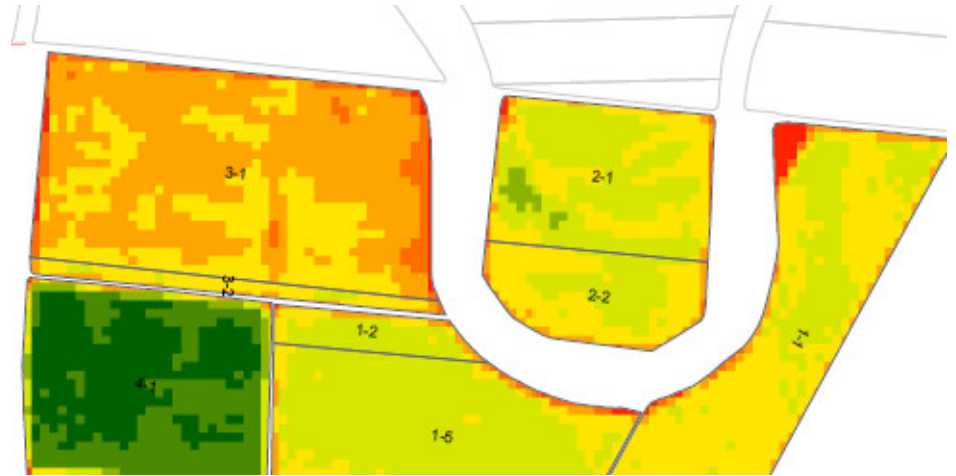


●●●● Goal

This Blackrock grower is interested in exploring EM mapping as a way to manage variation in cane yield and soil condition across his farm. He also wants to try mixed legumes after having previously used single-species cover crops in rotations.

●●●● Overview

By EM mapping his blocks the grower can target specific soil constraints within his cane blocks. This will allow him to soil sample site specific points and monitor the progress of the constraint through application of amendments such as gypsum. The grower also wants to try mixed species fallow cropping to improve soil structure and health.



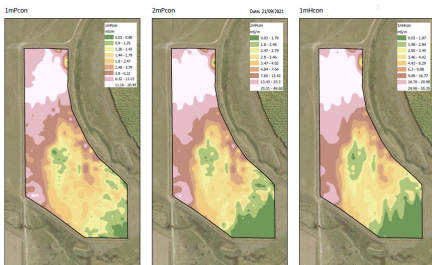
NDVI map from March 2022 indicating the health of the legume crop in block 4-1

●●●● Action

- After harvest, blocks will be chosen for EM mapping based on grower knowledge of block with constraints.
- After blocks have been EM mapped, site specific soil testing will be done to identify soil constraints.
- After soil results are analyzed target applications of amendments will be applied.
- The grower will plant a mixed species crop on fallow ground during the summer 2021/2022 fallow season.
- In addition to further refining their fallow legume practices the grower is also refining their nutrient management approach through their NMP, reducing their nitrogen by 5-10kg/ha in their late ratoons.

●●●● Outcome

- Several blocks have been EM mapped and site specific soil testing has commenced for determining soil constraints to crop growth. The grower is looking to continue the process of EM mapping and strategic soil testing in the coming season to further refine their amelioration pr
- The grower was happy with the mixed legume fallow crop of lablab, cowpea & sunnhemp they planted in late 2021. All the legume blocks developed well and maintained moisture levels over their growing period as can be seen from the NDVI maps tracking plant health over the start of the year when an extended heatwave saw significant drying across the district. The grower has continued to use mixed legumes in their 2023 fallow.
- The grower has received their updated NMP incl. recommendations for reductions older ratoons of 10kgN/ha.



More EM mapping to identify regions of constraint impacting on cane productivity

