PROJECT CATALYST

Case Study

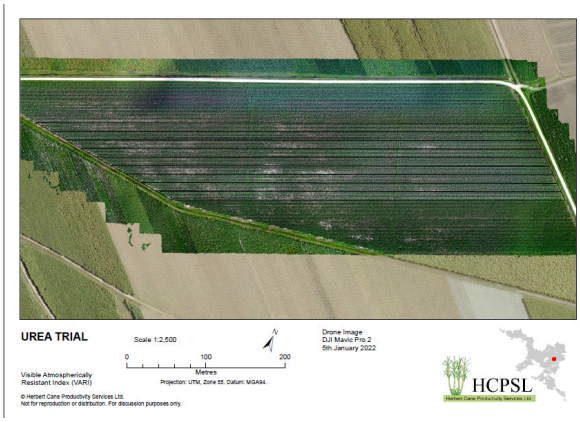
Reduced N Fertiliser Rates After Mill Mud & Mixed Legumes to Control Pathogenic Nematodes

LANDHOLDER	CSLH010004
LOCATION	Victoria Estate
CATCHMENT	Lower Herbert
RAINFALL	2022 - 1804mm 2023 - 1695mm
PROPERTY SIZE	150ha
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 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.



Drone image of trial block

Flagging indicates different rates of N applied

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2024

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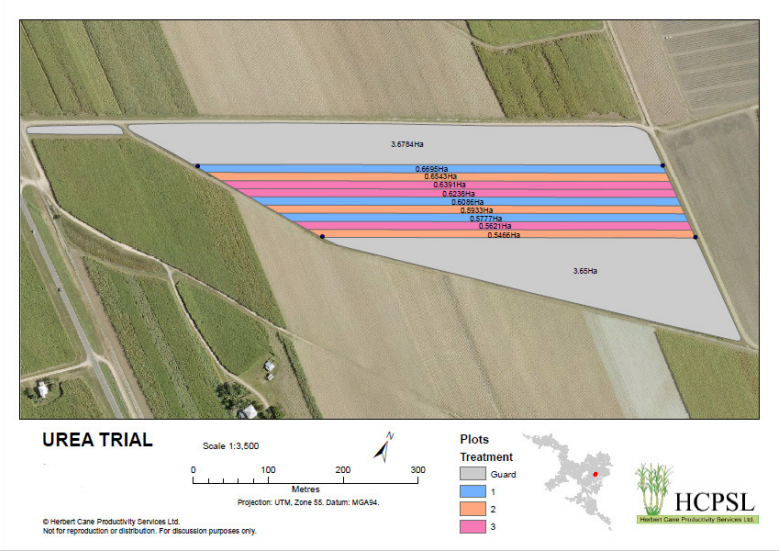
Goal

-To compare different N rates after mud applied at 100T/ha broadcast.
-To compare pathogenic nematode populations after different mixed legume species have been grown in the fallow.



Trial design of reduce N after mud

Overview

The grower believes he has the potential to reduce his chemical N fertilizer rates further than the suggested 6 Easy Steps rates after a mud/ash mix has been applied. He wants to trial different rates of N in plant cane to see how far he can reduce his N without loss of yield and sugar.
The grower also wants to compare different mixes of legumes in his fallow blocks to help reduce and control pathogenic nematode during the fallow period.

Water samplers installed at site

Action

- Choose a block to trial different N rates after mud/ash mix.
- N rates to be trialled are 80kg/ha, 60kg/ha and 40kg/ha.
- At side dress of fertilizer in plant cane different N rates will be applied.
- Harvest next year (2022) the data will be taken through to the mill and yields and sugar comparisons will be made.

- Fallow block will be planted with mixed legume species and another fallow block as weedy fallow to assess the differences between pathogenic nematode comparisons between the different fallow practices.
- Pathogenic nematode samples will be collected from both blocks during the fallow season.

Outcome

Reduced nitrogen trial was implemented in September 2021. on the chosen plant block. Water samplers were installed to compare run-offs after different N rates. Water samples were collected from the trial site on the 28.01.22 after 62ml rainfall event. And again on the 4.02.22 after 53ml rainfall event. Results were inconclusive. Trial is being harvested on the 13.08.22. to compare yield and CCS results.

Legume crops were planted in December 2021. Nematode and pachymetra samples were collected from the block on the 16.03.22 to compare the difference between mixed fallow legume crop against a weedy fallow block. Results showed the weedy fallow had significantly more pathogenic nematodes compared to the mixed legume fallow. Mixed legume fallow also had considerably higher numbers of beneficial nematodes when compared to the weedy fallow.

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