



# Case Study

## Reduce Nitrogen Application in Sugarcane Plant Crops Across the Farm Following Productive Legume Cover Crops



<b>LANDHOLDER</b>	PCCCF2021BAV38
<b>LOCATION</b>	Calen
<b>CATCHMENT</b>	O'Connell
<b>RAINFALL</b>	1705 mm
<b>PROPERTY SIZE</b>	45.43 ha
<b>ON-GROUND PROVIDER</b>	Nutrien Ag Solutions

**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.



Fallow Block - Persistent wet weather prevented planting legumes



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●●●● Goal

To plant and establish a productive legume cover crop to fallow blocks. Aim to yield returns in reducing Nitrogen fertiliser application to the plant sugarcane crop and associated benefits of soil health, suppression of pest population and weed establishment, erosion and improving the water quality leaving the paddock therefore reducing environmental effects.



Fallow Block-Persistent wet weather prevented planting legumes

●●●● Overview

The farm is located near Calen, North of Mackay and is situated in the O'Connell Catchment Area. Sugarcane variety Q208 is the main variety grown on farm. The farm has limited irrigation and relies on seasonal rainfall. The grower is familiar with monitoring weather forecasts in securing the perfect timing to conduct farming operations.

The grower plans to plant a legume cover crop to a fallow block. The fallow management of the blocks will be to ratoon spray-out by applying recommended herbicides.

The main soil types across the farm is Solodic. Solodic topsoils are massive brownish-grey silty clay loams with a bleached surface and/or subsurface layer.



Soil Type: Solodic

●●●● Action

There were several challenges associated with the 2022 season, however, it was mainly due to persistent wet conditions and a rain event in January 2023. These conditions prevented access to the field making it impossible for the grower to adopt his second practice change of planting a cover crop. The block was prepared and ready unfortunately, the grower could not access the field due to flooding. This practice change has now been rescheduled and where appropriate plans are in place for the implementation at the end of 2023 harvest season. The action plan is to soil sample fallow blocks prior planting cover crops to provide analysis to assess the status of the soil's requirements. The grower will receive nutrient recommendations based on Six Easy Steps, with an option to reduce the Nitrogen application rate to the plant crop of sugarcane 'IF' the legume cover crop planted was successful. The grower has already implemented one practice change and the second one is now planned for the end of 2023 season to meet the projects goals.

●●●● Outcome

A wet weather event occurred in Jan2023 with over 600mL of rainfall. Unfortunately the block was flooded and remained under water for a period of time and too wet to plant any cover crop. The grower will plant a cover crop when the opportunity arises and will incorporate this practice change into his future farm management plans. With the support of Project Catalyst and Nutrien Ag Solutions the grower has adopted beneficial and sustainable farming practice changes across the farm. The main focus on improving the quality of water leaving the paddock and reducing environmental effects and on the Great Barrier Reef - a DIN saving of 51.2kg. The Grower has been provided with a current Nutrient Management Plan which extends a revitalised Best Management Practice approach to farming and the environment. The grower has applied one practice change plus a second one is required to meet the projects pathway goal.



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