



# Case Study

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



<b>LANDHOLDER</b>	PCCCF2021BAV35
<b>LOCATION</b>	Kolijo
<b>CATCHMENT</b>	O'Connell
<b>RAINFALL</b>	1705 mm
<b>PROPERTY SIZE</b>	116.29 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.



Block to be fallowed for Cover Crops delayed due to wet field conditions

Block to be fallowed for Cover Crops delayed due to wet field conditions



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## ●●●● Goal

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



Block to be fallowed for Cover Crops delayed due to wet field conditions (Part S/over & harvested)

## ●●●● Overview

The farm is located near Koliyo and is situated in the O'Connell Catchment Area. The farm has limited irrigation and totally reliant on rainfall to grow their annual sugarcane crop. The grower will monitor weather forecasts in securing the perfect planting time for legumes.

Where appropriate the grower plans to plant legume cover crops to fallow blocks. The fallow management plan of the blocks will be to ratoon spray-out by applying the recommended herbicides. The majority of the farm is made up of Solodic soil type of which the topsoils are of massive brownish-grey silty clay loams with a bleached surface and/or subsurface layer. Subsoils are grey heavy clays with many yellow mottles and a good structure.



Soil Type - Solodic

## ●●●● Action

The sugarcane ratoon block to be fallowed was left part stood over and part harvested following challenges associated with the 2022 harvest, rain event and persistent wet conditions. These challenges prevented the grower from implementing his 2022 practice change to plant legume cover crops, which have also delayed associated benefits of reduced fertiliser application rates to the subsequent sugarcane crop. However, this practice change has only been deferred and plans are in place for the implementation at the end of the 2023 harvest season. The action plan is to soil sample the fallow block/s following the 2023 ratoon harvest, providing analysis to assess the current status of the soil requirements. The grower will receive nutrient recommendations based on six easy steps for the subsequent sugarcane plant crop. The grower has already implemented one practice change and the second one is planned for the end of 2023 season to meet the projects practice change pathway goal of 2 new practices adopted over two years.

## ●●●● Outcome

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. Where appropriate with these practice changes incorporated into the growers farm management plan a DIN saving of 109kg over the two year Project will be achieved.

The Grower has been provided with a current Nutrient Management Plan which extends a revitalised Best Management Practice (BMP) approach to farming and the environment.

The grower now has the latest advice that allows to efficiently manage nutrients in response to their own on-farm conditions, crop requirements and farming practices.



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