



# Case Study

## Planting of Legume Cover Crops Reducing Nitrogen Requirements to Subsequent Sugarcane Plant Crops



<b>LANDHOLDER</b>	PCCCF2021BAV32
<b>LOCATION</b>	Kolijo
<b>CATCHMENT</b>	O'Connell
<b>RAINFALL</b>	1705 mm
<b>PROPERTY SIZE</b>	214.18 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 has delayed planting legumes

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## ●●●● Goal

Plant and establish fallow blocks to legume cover crops to yield returns in reducing Nitrogen fertiliser application without attracting productivity penalties to the subsequent sugarcane plant crop. To capture associated benefits of improved soil health, suppression of weeds and pest populations, erosion and reduce off-farm environmental effects and the Great Barrier Reef.



Fallow Block - Persistent wet weather has delayed planting legumes

## ●●●● Overview

The farm has limited irrigation therefore, the grower monitors the weather forecasts closely in securing the perfect window to plant a legume cover crop. The grower is aiming to plant legume cover crops of Cowpea to fallow blocks and to reduce Nitrogen requirements to subsequent sugarcane plant crops, while aiming to improve water leaving the paddock and reducing environmental effects on the Great Barrier Reef. The two main sugarcane varieties planted across farms are Q183 and Q208 due to their good performance and reliability.

The majority of this farm is made up of Prairie being a brown structured clay soil and Solodic which is a Sandy clay loam topsoil over a mottled grey clay subsoil types.



Soil Types: Prairie and Solodic

## ●●●● Action

The sugarcane ratoon blocks to be fallowed were harvested in January 2023 following many challenges associated with the 2022 harvest. These challenges have delayed the grower in implementing his practice change to plant a legume cover crop (cowpea).

The grower has purchased the legume seed being cowpea variety Ebony and plans to direct drill the seed once the planter is available approximately late January early February. The seed has been stored to maintain the legumes viability. The plan is to soil sample the block/s to be fallowed following the harvest of ratoon blocks, providing analysis to assess the current status of the soil requirements. The grower will receive recommendations based on six easy steps for the subsequent sugarcane plant crop. The grower has already implemented one practice change and where appropriate the second one will be implemented to meet the projects practice change pathway goal of 2 new practice changes adopted over 2 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.

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 now has the latest advice that allows to efficiently manage nutrients in response to their own on-farm conditions, crop requirements and farming practices. The grower has implemented Nitrogen reduction practice change plus a second one is in progress for the end of 2023 season to meet the project practice change pathway goal of 2 new practices adopted.



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