



Case Study

Plant Legume Cover Crops to Fallow and Reduce Nitrogen Fertiliser to Subsequent Sugarcane Plant Crops



LANDHOLDER	CSMW010019
LOCATION	Homebush
CATCHMENT	Plane Creek
RAINFALL	1500 mm
PROPERTY SIZE	222.74 ha
ON-GROUND PROVIDER	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 blocks - wet conditions delayed fallow plant of legumes



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Great Barrier
Reef Foundation



2024

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Goal

To plant and establish productive legume cover crops to fallow blocks. To improve returns while reducing Nitrogen fertiliser application to the subsequent plant crop and gain associated benefits of soil health, suppression of pest populations and weed establishment. Erosion control and improving the water quality leaving the paddock will also reduce potential environmental effects.



Fallow blocks - wet conditions delayed fallow plant of legumes

Overview

The farm is a family run sugarcane farming business located at Homebush west of Mackay and is situated in the Plane Creek Catchment Area. Q208 is the main variety grown on farm due to its suitability to this area. The farm has irrigation utilising a high pressure overhead system. Planting and establishment of legume cover crops to fallow blocks is planned which will aid in reducing Nitrogen fertiliser inputs to the subsequent sugarcane plant crop. The legume fallow will improve soil structure, boost soil organic Nitrogen, reduce disease pathogen pressure and improve grass weed control. There are three main soil types across the farm being Podzolic, Non-calcic brown and Grey Clay.



Soil Types: Podzolic, Non-calcic Brown and Grey Clay

Action

There were several challenges associated with the 2023 season, however, in the end it was mainly due to persistent wet conditions not allowing access to the field which prevented the grower from implementing his second practice change to plant legume cover crops. This delay presents a cumulative effect delaying any associated benefits of reduced fertiliser application rates to the subsequent sugarcane crop. Fortunately, this practice change has only been delayed and where appropriate plans are in place for the implementation at the end of 2024 harvest season. The action plan is to soil sample the fallow blocks prior to planting the cover crops providing analysis to assess the status of the soil and its requirements. The grower will continue to receive nutrient recommendations based on six easy steps for the subsequent sugarcane plant crop and will look at what additional practice changes can be made on the farm.

Outcome

With the support of Project Catalyst and Nutrien Ag Solutions the grower has adopted beneficial and sustainable farming practice changes across their farms. The main focus on improving the quality of water leaving the paddock and reducing environmental effects on the Great Barrier Reef. A DIN saving of 67kg is projected. 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 them to efficiently manage nutrients in response to their own on-farm conditions, crop requirements and farming practices.

The grower has now implemented 3 practice changes and exceeds the practice change pathway goal of 2 new practice changes being adopted.