



Case Study

Reduce Nitrogen Fertiliser Application to Subsequent Sugarcane Plant Cane Following Legume Crops (Cowpea)



LANDHOLDER	CSMW010015
LOCATION	Homebush/Eton
CATCHMENT	Plane Creek
RAINFALL	1500 mm
PROPERTY SIZE	79.44 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 Management Legume Cover Crop - Cowpea



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Great Barrier Reef Foundation



Goal

To plant and establish productive legume crops to fallow blocks. Aim to improve returns while reducing Nitrogen fertiliser application to the plant sugarcane crop and gaining 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.



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Overview

The farm is located at Eton west of Mackay and is situated in the Plane Creek Catchment Area. Furrow irrigation is the main method of irrigation capturing tailwater from approximately 50% of the farm to retain on-farm for re-use. The grower is aiming to plant legume cover crops of Cowpea to the 2022 fallow blocks in preparation for the 2023 plant sugarcane crop. The benefits of planting legume cover crops is that Nitrogen requirements can be reduced in the subsequent plant sugarcane crop. The legume fallow will improve soil structure, boost soil organic Nitrogen, reduce disease pathogen pressure and improve weed control. The farm consists of two main soil types being Podzolic and Soloth.



Podzolic and Soloth Soil Types

Action

Prior to planting the legume cover crop old ratoons and weeds were sprayed out. This practice also acted as a preventative measure in lowering weed pressure and weeds setting seed. Other cultural practices included off-setting and ripping prior planting the legumes. Following these management practices the block continued to maintain good organic matter and soil moisture in preparation for planting of the legumes.

The legumes were planted by broadcast method and received a rotary hoe to incorporate the seed. The legume received good rainfall over a two week period post planting which aided in germination. The establishment of the legume crops enabled a reduction of nitrogen fertiliser requirements in the subsequent sugarcane plant crop.

Adopting this practice change has enabled the grower to secure benefits in reducing Nitrogen application without impacting crop yield and delivered immediate cost savings.

Outcome

With the support of Project Catalyst and Nutrien Ag Solutions the grower has adopted beneficial and sustainable farming practice changes across his farms. The main focus has been on improving the quality of water leaving the paddock and reducing environmental effects and on the Great Barrier Reef. A DIN saving of 27kg was achieved.

The Grower has been provided with a compliant Nutrient Management Plan which guides a Best Management Practice approach to farming and the environment. The grower has taken advice that has helped to efficiently manage nutrients in response to their own on-farm conditions, crop requirements and farming practices.

The grower has now implemented 6 practice changes which exceeds the practice change pathway goal of 2 new practice changes being adopted.