2022

PROJECT CATALYST

Case Study

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

LANDHOLDER	PCCCF2021BAV29
LOCATION	Mt Pelion
CATCHMENT	O'Connell
RAINFALL	1705 mm
PROPERTY SIZE	259.81 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.

Wet conditions delayed fallow planting of cover crops

Fallow block-wet conditions delayed fallow planting of legumes

Australian Government | REEF TRUST | Great Barrier Reef Foundation | THE Coca-Cola FOUNDATION | WWF

2022 Reduce Nitrogen Application in Sugarcane Plant Crops Across the Farm Following Productive Legume Cover Crops

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

Fallow block under wet conditions delayed fallow planting of cover crops

Overview

The farm is located near Mt Pelion and is situated in the O'Connell Catchment Area. The farm has limited irrigation and relies on seasonal rainfall. The grower will monitor weather forecasts in securing the perfect window for planting legumes. The plan is to plant legume cover crops to fallow blocks. The fallow management of the blocks will be to ratoon spray-out by applying recommended herbicides. The main soil types across the farms are Soloth and Solodic.
Soloth topsoils are massive brown-grey fine sandy loams to loams with a bleached subsurface layer. Solodic topsoils are massive brownish-grey silty clay loams with a bleached surface and/or subsurface layer.

Soil Types: Soloth and Solodic

Action

There were several challenges associated with the 2022 season, however, in the end it was mainly due to persistent wet conditions not allowing access to field which prevented the grower from implementing his second practice change to plant a legume cover crop. 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 2023 harvest season. The action plan is to soil sample the fallow blocks, prior planting the cover crops providing analysis to assess the status of the soil's 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 now planned for the end of 2023 season to meet the projects practice change pathway goal of 2 new practices adopted.

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.
A DIN saving of 53.7kg has been achieved over the 2 year Project.
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. The grower has implemented Nitrogen reduction practice change plus a second one to be implemented at the end of the 2023 season to meet the project practice change pathway goal.