2023

PROJECT CATALYST

Case Study

Plant Soybean Cover Crops and Adopt Benefits of Soil Health and Reduce Nitrogen to the Subsequent Plant Crop

LANDHOLDER	PCCCF2023BAV46
LOCATION	Farleigh
CATCHMENT	O'Connell
RAINFALL	1705 mm/year
PROPERTY SIZE	97.43 ha
ON-GROUND PROVIDER	Nutrien Ag Solution

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.

Soybean Cover Crops Planted to Fallow Blocks

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

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Goal

To utilise a compliant Nutrient Management Plan to identify blocks where reduced nitrogen application can be made to plant cane crops following legumes without incurring productivity penalties and saving on fertiliser costs. To yield the benefits of improved soil health, suppression of pest populations and weed establishment, erosion and reducing off-farm environmental effects.

Soybean Cover Crops Planted to Fallow Blocks

Overview

The farm is located near Farleigh north of Mackay and is situated in the O'Connell Catchment Area. The farm has limited irrigation and relies on seasonal rainfall. Planting of soybean cover crops to fallow blocks will be beneficial for improving soil health, protecting soil from erosion over the wet season and can contribute significant amounts of nitrogen (N) to the soil. This will enable the grower to apply a lower rate of N fertiliser following soybean cover crops to the subsequent plant cane crop, reducing costs without impacting yield and have the potential environmental benefit of reducing the risk of nitrogen runoff.

Main soil types are Prairie, Solodic and Black Earth.

Soil Type: Prairie, Solodic and Black Earth

Action

Soybean legume cover crops were planted to fallow blocks across both farms. Prior to planting soybeans the district received approx 300mL of rainfall during the period July-Sep 2023 which provided good moisture for planting the Soybeans during October.

Germination of the soybeans was patchy so it was decided to spray out and replant a second crop in January 2024.

The final management of the soybeans bio-mass will involve spraying out using a suitable herbicide allowing the bio-mass residue to degrade. The nitrogen supplied by the soybean will fix to the soil following the decomposition of the crop.

Soil samples were taken from fallow blocks prior to planting soybeans to assess the current nutrient status of the soil within each of the growers fallow blocks, therefore, assisting in determining fertiliser type and rate for the subsequent sugarcane plant crop.

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 the potential impact on the Great Barrier Reef. The Grower has made a total DIN saving of 95.98kg.

The Grower will be provided with a compliant NMP which forms an important part of a Best Management Practice approach to farming and the environment. The grower will have 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 implemented two practice changes and meets the project practice change pathway goal of "2 new practice changes adopted in 2 years".