PROJECT CATALYST

Case Study

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

LANDHOLDER	CSMW010010
LOCATION	Munbura
CATCHMENT	Plane Creek
RAINFALL	1500 mm
PROPERTY SIZE	182.46 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 - Old Ratoons to Soybean Cover Crop

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2024

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Goal

To plant and establish productive soybean crops to fallow blocks. Aim to improve returns while reducing Nitrogen fertiliser application to the plant cane crop cycle 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.

Old Ratoons to Soybean Cover Crop - Rainfall event making conditions too wet

Overview

The farm is located at Munbura south of Mackay and is situated in the Plane Creek Catchment Area. The farm has limited irrigation and relies on seasonal rainfall. Some Tail-water is captured and retained on-farm for re-use. The grower is aiming to plant a legume cover crop to the 2022 fallow blocks in preparation for the 2023 plant crop. A benefit of planting a legume cover crop is that Nitrogen requirements can be reduced in the subsequent plant sugarcane. Soloth and Solodic are the two main soil types. These soil types are known to grow productive legume fallow crops while delivering environmental benefits. Solodic topsoils are brownish-grey silty clay loams and Soloth topsoils are grey-brown sandy clay loams.

Soloth and Solodic Soil Profiles

Action

Growers were presented with many challenges during the 2022 harvest season. The fallow to be planted to legumes was ploughed out but water logging prevented the grower from implementing the 2022 practice change of planting a legume cover crop. Excessive rainfall also deferred benefits of reduced fertiliser application rates to the subsequent sugarcane crop. The grower had engaged a contractor who provides the legume planter and plants the legumes. This had to be cancelled. Fortunately, this practice change has only been deferred and plans are in place to implement at the end of the 2023 harvest season. The action plan is to soil sample fallow blocks following the 2023 ratoon harvest and prior legume planting. This will provide analysis to assess the current status of the soil nutrient requirements. The grower will receive recommendations based on six easy steps for the subsequent sugarcane plant crop. The grower has implemented one practice change and the second one planned now forms part of the farm management plan going forward.

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 has been on improving the quality of water leaving the paddock and reducing environmental effects on the Great Barrier Reef. A DIN saving of 33.5kg 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 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 a additional N reduction practice change and has implemented a total of 3 changes practice changes which exceeds the pathway goal of 2 new practice changes being adopted.

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