



Case Study

Establish Productive Legume Cover Crops and Reduce Nitrogen Application to Subsequent Sugarcane Plant Crops



LANDHOLDER	CSMW010023
LOCATION	Racecourse
CATCHMENT	Pioneer
RAINFALL	1541 mm
PROPERTY SIZE	91.92 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.



Ebony Cowpea Cover Crop planted to Fallow Blocks



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Great Barrier
Reef Foundation



Goal

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

Overview

The farm is located in the Racecourse area and is situated in the Pioneer Catchment. The farm is dryland having no irrigation and relies 100 per cent on annual rainfall. The farms two main sugarcane varieties are Q208 and Q240 due their complementing attributes to the farms environment. Ebony Cowpea is the grower's choice of legume cover crop to plant to fallow blocks due to its key features of ability to fix nitrogen, easy to establish, drought tolerance and adaptability to a wide range of soil types. The main soil profile across the farm is Podzolic. The topsoils are of massive, brown-grey sandy loams to sandy clay loams with a bleached subsurface layer.



Podzolic Soil Profile



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Action

Prior to planting the legume cover crop the old sugarcane ratoons were cultivated out by off-setting and ripping. Following these management practices the block continued to maintain good organic matter and soil moisture in preparation for planting of the Cowpea cover crop.

The Grower sourced a legume planter and conducted the planting of Cowpeas to fallow blocks across his farms. The cover crops will be grown for approximately 3 to 4 months and depending on the blocks soil moisture the cover crops will be terminated before soil moisture is depleted by slashing and off-setting.

Soil samples were taken from fallow blocks after ratoon harvest, providing analysis to assess the current nutrient status and soil nutrition requirements. The grower received nutrient recommendations based on Six Easy Steps with an option to reduce the Nitrogen application rate to the subsequent plant crop of sugarcane if the legume cover crops are successful.

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. The grower has achieved a projected DIN saving of 13kg.

The Grower has been provided with a current Nutrient Management Plan which extends a revitalised 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 4 practice changes which exceeds the practice change pathway goal of 2 new practice changes adopted in 2 years.