2024

PROJECT CATALYST

Case Study

Reduce Nitrogen Fertiliser Application to Sugarcane Plant Crops Following Good Legume Crops

LANDHOLDER	CSMW010011
LOCATION	Homebush
CATCHMENT	Plane Creek
RAINFALL	1500 mm
PROPERTY SIZE	59.86 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.

Sunn Hemp Cover Crop Fallow Block Prior Sugarcane Planting

Sugarcane Planting following Cover Crop of Sunn Hemp

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Reduce Nitrogen Fertiliser Application to Sugarcane Plant Crops Following Good Legume Crops

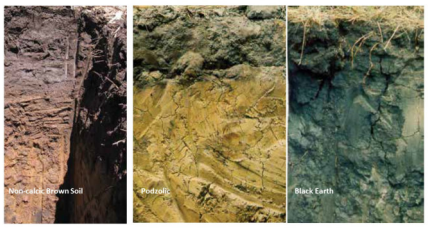
Goal

To update and conduct a complete revision of the farm fertilising practice. To utilise a compliant Nutrient Management Plan, that will identify blocks where reductions in fertiliser application could be made without productivity penalties, saving on fertiliser costs and reducing potential off-farm environmental effects.

Sugarcane Planting following Cover Crop of Sunn Hemp

Overview

The growers fallow management on one block consisted of a crop of Cowpea and Millet which was bailed and direct drilled post bailing with Soybean and Sunn Hemp. Mixed Species 7 ways was planted to other fallow blocks. The concept behind legume fallow is that Nitrogen requirements are reduced in plant cane following good quality legume crops. The legume fallow improves soil structure, boosts in soil organic Nitrogen, reduces disease pathogen pressure and improves weed control. Planting legumes in the fallow forms part of the Improved Farming System (IFS) strategy and also fits with Best Management Practices (BMP) adopted on farm.
The Farm has 3 soil types:Non-calcic Brown, Podzolic and Black Earth.



Three Soil Types: Non-calcic Brown, Podzolic and Black Earth

Action

A selection of cover crops were planted across fallow blocks. The cover crops Cowpea and Millet were harvested and bailed. The block received a second cover crop which was direct drilled with Soybean and Sunn Hemp. Mixed Species 7ways was also planted to other fallow blocks across the farm. The cover crops were sprayed out using a suitable herbicide allowing the bio-mass residue to compost. Tillage of the blocks was required to remove compaction and stubble and to convert to the new sugarcane plant cycle of 1.8m row spacing to zonal tillage. Single rows of sugarcane were established on the newly formed 1.8m zonal beds.
Soil samples were taken from fallow blocks after ratoon harvest, providing analysis to assess the current nutrient status of the soil requirements. The grower received nutrient recommendations and a compliant Nutrient Management Plan based on 6EasySteps taking into account good legume crops. A reduction in fertiliser application of 50kgN/ha on plant blocks was implemented.

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 DIN saving of 22.4kg.

The grower has been provided with a compliant NMP which forms an important part of a Best Management Practice approach to farming and the environment. The grower now has 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 now implemented 9 practice changes and exceeds the practice change pathway goal of 2 new practice changes being adopted.

Additional changes included further N reductions at various crop stages, controlled traffic, row and machinery width changes, reduced cultivation and improved pesticide management.

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