



Case Study

Nitrogen Reduction to Fallow Sugarcane Plant Following a Good Quality Soybean Crop



LANDHOLDER	CSMW010009
LOCATION	Mirani
CATCHMENT	Pioneer
RAINFALL	1541 mm
PROPERTY SIZE	406.3 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.



Nitrogen Reduction to Fallow Plant following a good Soybean Crop



Nitrogen Reduction to Fallow following a good soybean crop



Great Barrier
Reef Foundation



Goal

To update and conduct a complete revision of the farms 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 off-farm environmental effects.



Overview

Planting of soy beans to fallow blocks was a focus across the farms in preparation for the subsequent 2022/23 plant crop. The concept behind legume fallow (soybeans) 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 (soybean) in the fallow forms part of the Improved Farming System (IFS) strategy and also fits with BMP practices adopted on farm.

The farms two main soil types are made up of Grey Clay and Soloth.



Soil Types - Grey Clay and Soloth

Nitrogen Reduction to Fallow Plant following a good quality Soybean Crop

Action

Legume fallow consisting of soybean crops were planted across fallow blocks on all farms. The soybean crops were managed to a high yielding and healthy beneficial crop, supplying nitrogen to the subsequent sugarcane plant crop.

Final management of the legumes bio-mass involved spraying out using a suitable herbicide allowing the bio-mass residue to degrade. The nitrogen fixed by the legume is added to the soil following the decomposition of the crop. Soil samples were taken from fallow blocks prior to cultivation. Soil tests assess the current nutrient status of the soil within each of the growers fallow blocks, therefore, assisting in determining fertiliser type and rate. The grower received nutrient recommendations based on 6EasySteps taking into account a good legume crop.

A reduction in fertiliser application of 10kgN/ha across plant blocks on all farms 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 130kg.

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 implemented 4 practice changes which exceeds the practice change pathway goal of "2 new practice changes adopted in 2 years".