PROJECT CATALYST

Case Study

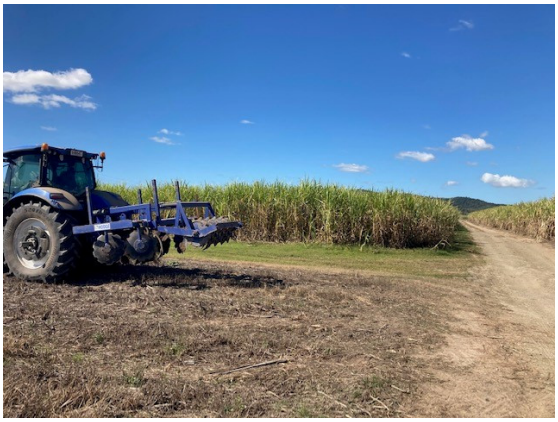
Improve Sugarcane Cropping by Increasing to 1.8m GPS Dual Row Zonal Beds and to Fallow Plant Legume Crops

LANDHOLDER	CSMW010008
LOCATION	Marian
CATCHMENT	Pioneer
RAINFALL	1541 mm
PROPERTY SIZE	123.20 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.



Bed Renovator being used to incorporate old ratoons

Sugarcane planted to dual row 1.8m GPS Zonal Beds

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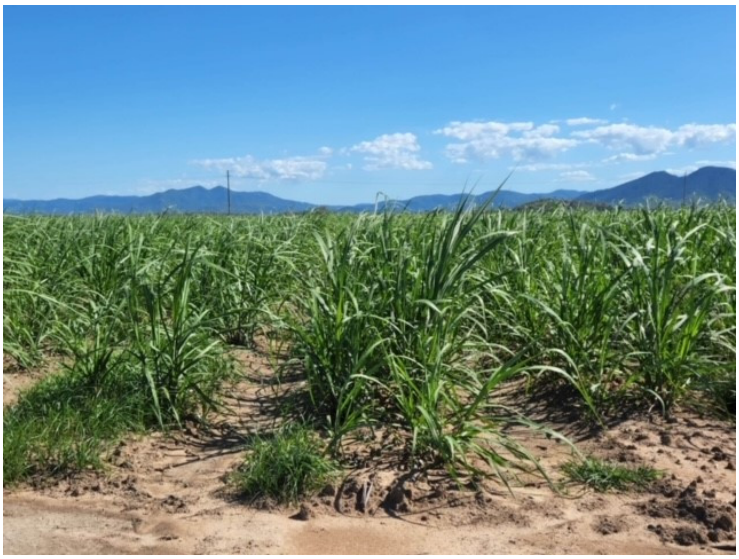
2024

Improve Sugarcane Cropping by Increasing to 1.8m GPS Dual Row Zonal Beds and to Fallow Plant Legume Crops

Goal

Improve sugarcane farming systems on fallow blocks by widening row spacing to 1.8m accommodating machinery and reduce compaction. Laser level fallow blocks, improving drainage and furrow irrigation and bed-forming (raised beds). To reduce water movement through the fertiliser band and nitrogen losses in drainage water and DIN. To plant legumes at the end of the crop cycle.



Sugarcane planted to dual row 1.8m GPS Zonal Beds

Overview

To move to a controlled traffic farming system and reduce tillage. All sugarcane planted from 2022 on-wards to be planted into 1.8m wide row raised beds. The beds to be formed using GPS and a bed forming implement. The sugarcane to be planted using a dual row double disc opener planter. At the end of the crop cycle a legume cover crop will be planted and all ratoon crops will have reduced Nitrogen application. The farm is situated in the Pioneer Catchment and made up of three soil groups:
Brightley - soils are formed by floods depositing silts and clays.
Calen - soils occur on slightly elevated areas on alluvial plains.
Mirani - soils have formed from alluvium.

Soil Groups: Brightley, Calen & Mirani

Action

After the final sugarcane ratoon harvest, the blocks to be fallowed were soil sampled prior any cultivation. This is best practice for assessing the current nutrient status of the soil and determining fertiliser type and rate for the subsequent plant sugarcane crop.
To improve sugarcane farming systems on fallow blocks entering the farming rotation, row spacing was changed to 1.8m accommodating machinery and reduce compaction. Laser levelling of fallow blocks improved drainage and furrow irrigation and bed-forming (raised beds). The 2022 sugarcane plant crop was planted into dual row zonal beds by a double disc opener planter. Soybean is the growers preferred legume to plant as a fallow break crop as it has the ability to handle wet season conditions and can be planted in the traditional fallow period of sugarcane offering many benefits to soil health. Prior to planting Soybeans, the old sugarcane ratoons are sprayed out using a suitable herbicide.

Outcome

With support of Project Catalyst and Nutrien Ag Solutions this 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 101kg was achieved. The Grower has been provided with a current Nutrient Management Plan which extends a revitalised Best Management Practice (BMP) 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 now implemented 9 practice changes which exceed the practice change pathway goal of "2 new practice changes adopted in 2 years".
Additional changes included fallow management, further N reductions at various crop stages, controlled traffic, row and machinery width changes, reduced cultivation and improved pesticide management.

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