



# Case Study

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



<b>LANDHOLDER</b>	PCCCF2022BAV36
<b>LOCATION</b>	Calen
<b>CATCHMENT</b>	O'Connell
<b>RAINFALL</b>	1705 mm
<b>PROPERTY SIZE</b>	672.64ha
<b>ON-GROUND PROVIDER</b>	Nutrien Ag Solution

**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 and fallow fields - 4 weeks post germination



Sunn Hemp Seedling - 4 weeks post germination



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●●●● Goal

To plant and establish fallow blocks to legume cover crops of SunnHemp. To reduce nitrogen application to the subsequent sugarcane plant crop without incurring productivity penalties and saving on fertiliser costs. To yield the benefits of improved soil health, suppression of pest populations and weed establishment, erosion and reducing off-farm environmental effects.



Sunn Hemp - 8 weeks post germination

●●●● Overview

The farm is located near Calen north of Mackay and is situated in the O'Connell Catchment Area. The three main varieties grown across farms are Q183, Q240 and SP80-1816.

The farm has limited irrigation and relies on supplementary rainfall. Planting and establishment of legume cover crops to fallow blocks was carried out and will reduce Nitrogen fertiliser inputs to the subsequent sugarcane plant crop. The legume fallow will improve soil structure, boost soil organic Nitrogen, reduce disease pathogen pressure and improve grass weed control.

The three main soil types across the farms are Alluvial, Prairie and Solodic.



Soil Types: Alluvial, Prairie and Solodic

●●●● Action

The legume Sunn Hemp was selected by the grower to plant as a cover crop because it is drought hardy, fast growing, not fussy with soil types and a good producer of Nitrogen. Sunn Hemp has the ability to handle wet season conditions and can be planted in the traditional fallow period of sugarcane offering a multitude of benefits for soil health. In preparation of the fallow blocks to be planted to Sunn Hemp the old sugarcane ratoons were bumpered out using off-sets, the Sunn Hemp seeds were broadcast to the blocks and cultivated in using rotary hoe. The Sunn Hemp received one irrigation under the Pivot to aid in germination. Good followup rainfall was received following germination.

After final ratoon harvest of blocks to be fallowed, soil samples were taken providing analysis to assess the current status of soil requirements. The grower received nutrient recommendations for the subsequent plant crop based on Six Easy Steps taking into account good legume crops.

●●●● Outcome

With the support of Project Catalyst and Nutrien Ag Solutions the grower has adopted beneficial and sustainable farming practice changes across the farms. The main focus on improving the quality of water leaving the paddock and reducing environmental effects on the Great Barrier Reef. The Grower has made a DIN saving of 846kg over the two years of the Project.

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 now implemented two Nitrogen reduction practice changes and meets the project practice change pathway goal of "2 new practices adopted in 2 years".



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