



# Case Study

## Reduce Nitrogen Application in Sugarcane Plant Crops Following Well Established and Productive Cover Crops



<b>LANDHOLDER</b>	PCCCF2021BAV37
<b>LOCATION</b>	Pindi Pindi
<b>CATCHMENT</b>	O'Connell
<b>RAINFALL</b>	1705 mm
<b>PROPERTY SIZE</b>	315.82 ha
<b>ON-GROUND PROVIDER</b>	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.



Fallow blocks planted to Legumes (Cowpea) Cover Crop



Sugarcane Plant Crop following Cover Crop of Cowpea



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●●●● Goal

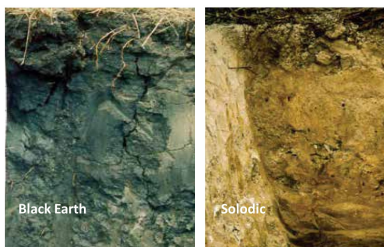
To utilise a compliant Nutrient Management Plan to identify blocks where reduced nitrogen application can be made to Plant crops following legumes, without incurring productivity penalties and saving on fertiliser costs. To yield the benefits of improved soil health, suppression of pest populations and weed establishment, erosion and reducing off-farm environmental effects.



Sugarcane Plant Crop following Cover Crop of Cowpea

●●●● 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, Q208 and Q240 and are well suited to this farm. The farm has limited irrigation and relies on supplementary rainfall. The planting of legume cover crops (Cowpea) to the 2021 fallow blocks were well established across the farms in preparation for the subsequent sugarcane plant crop. The concept behind legume fallow is that Nitrogen requirements are reduced in the plant cane crop. Legume fallow improves soil structure, boosts soil organic Nitrogen, reduces disease pathogen pressure and improves weed control. The two main soil types are Black Earth and Solodic.



Soil Types: Black Earth and Solodic

●●●● Action

The farm has limited irrigation therefore, weather forecasts were monitored very closely to secure the perfect window for planting of the legume cover crops. The old ratoons blocks were cultivated out and legumes planted and established successfully to a productive crop. The Legume fallow consisted of cowpea (Variety - Ebony). No herbicides were required as the cover crop was well established smothering any weed pressure. The legumes were cultivated out and sugarcane planted. As the legumes were managed to a high standard they provided benefits to enable a reduced Nitrogen application to the subsequent sugarcane plant crops and in turn the grower receiving fertiliser costs savings.

A reduction in Nitrogen fertiliser application was made at the side-dress stage of 20kg/ha across sugarcane plant crops on farm. Where appropriate this farming practice change has been adopted and now forms part of the farm management plan going forward.

●●●● 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 impact on the Great Barrier Reef. The Grower has made a DIN saving of 255kg over the two years of the practice change project. The Grower has been provided with a current NMP 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 two Nitrogen reduction practice changes and meets the project practice change pathway goal of "2 new practice changes adopted in 2 years".



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