



# Case Study

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



<b>LANDHOLDER</b>	PCCCF2021BAV27
<b>LOCATION</b>	Wagoora
<b>CATCHMENT</b>	O'Connell
<b>RAINFALL</b>	1705 mm
<b>PROPERTY SIZE</b>	299.66 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.



Legume Planter - Air Seeder and Speed Tiller Assembly



Speed Tiller - Legume Planer



Great Barrier  
Reef Foundation



## Goal

To plant and establish productive legume cover crops to fallow blocks. Aim to yield returns in reducing Nitrogen fertiliser application to plant cane crop cycle and the associated benefits of soil health, suppressing of pest populations and weed establishment, erosion and improving the water quality leaving the paddock therefore reducing environmental effects

## Overview

The farm is located at Wagoora north of Mackay and is situated in the O'Connell Catchment Area. The farm has limited irrigation and relies on supplementary rainfall. Some Tail-water of the farm area is captured and retained on-farm for re-use. The grower plans to plant legume cover crops to fallow blocks. The fallow management of the blocks will be to ratoon spray-out. This farm consists of three main soil types being Soloth, Alluvial and Podzolic.

Soloth - Topsoils are massive brown-grey fine sandy loams to loams with a bleached subsurface layer. Alluvial - Topsoils are massive brown, sandy clay loams to light clays. Podzolic - Topsoils are weakly structured, greyish sandy loams.



Soil Types: Soloth, Alluvial & Podzolic



Legume Planter - Air Seeder and Speed Tiller

## Action

The sugarcane ratoon block to be fallowed was stood over following challenges associated with the 2022 harvest. The challenges prevented the grower from implementing his 2022 practice change to plant a legume cover crop, which will also delay associated benefits of reduced fertiliser application rates to the subsequent sugarcane crop. Fortunately, this practice change has only been deferred and where appropriate plans are in place for the implementation at the end of 2023 harvest season. As a joint partner in a family farm the grower and partner have purchased an air seeder and speed tiller for legume planting across their farms. The action plan is to soil sample fallow blocks following the 2023 ratoon harvest and prior legume planting. This will provide analysis to assess the current status of the soil nutrient requirements. The grower will receive recommendations based on six easy steps for the subsequent sugarcane plant crop. The grower has implemented one practice change and the second one planned 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 the farm. The main focus on improving the quality of water leaving the paddock and reducing environmental effects and on the Great Barrier Reef. A DIN saving of 136kg was achieved. 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 implemented Nitrogen reduction practice change plus a second one at the end of the 2023 season to meet the project practice change pathway goal of 2 new practice changes being adopted.