



# Case Study

## Plant Legumes to Improve Sediment Control on Slopes and Reduce Nitrogen for Potential off-farm Losses to Waterways



<b>LANDHOLDER</b>	CSMW010026
<b>LOCATION</b>	Finch Hatton
<b>CATCHMENT</b>	Pioneer
<b>RAINFALL</b>	1541 mm
<b>PROPERTY SIZE</b>	78.66 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.



Mixed Species planted to fallow blocks



Mixed Species planted to fallow blocks



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●●●● Goal

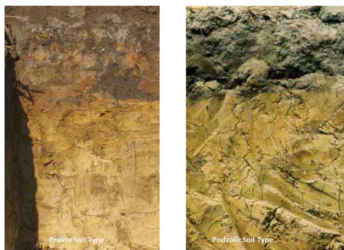
To plant and establish cover crops to fallow blocks for sediment control on slopes and to reduce Nitrogen in the subsequent plant sugarcane crop. To yield the benefits of reducing Nitrogen application and also the associated benefits of soil health, erosion while improving the water quality leaving the paddock and reducing environmental effects.



Mixed Species planted to fallow (soybean, sunn hemp, mung beans, cowpea & sun flowers)

●●●● Overview

The grower's farm is located near Finch Hatton west of Mackay and situated in the Pioneer Catchment Area. The farm consists of many undulating slopes. When fallowing blocks it is either to spray-out and leave or alternatively plant a cover crop. It is planned to plant mixed species cover crop to fallow blocks consisting of soybean, sunn hemp, mung beans, cowpea and sun flowers. The cover crops will be managed to yield the benefits of 'N' fixation for use by the subsequent plant cane crop and help to reduce soil erosion during high rainfall periods therefore, improving the quality of water leaving the paddock and reducing environmental effects. There are two main soil types across the farm being Prairie and Podzolic.



Soil Types Prairie and Podzolic

●●●● Action

The standover sugarcane blocks to be fallowed were burnt prior harvest, allowed to germinate and sprayed out with appropriate herbicides. This practice acted as a preventative measure in lowering weed pressure for future crops. The blocks were planted with a mixed species cover crop consisting of soy bean, sunn hemp, mung beans, cowpea, sun flower and buck wheat. The legumes were planted into the old sugarcane stool.

Prior to planting the subsequent sugarcane crop it is planned to cultivate using a bed renovator and rotary hoe to incorporate into the soil and allow for the stubble to further breakdown to obtain a reasonable tilth. The planting of leguminous cover crops would enable a reduction of nitrogen fertiliser requirements in the subsequent sugarcane plant crop. Adopting this practice change will enable the grower to secure benefits in reducing Nitrogen application without impacting crop yield and achieve immediate cost savings. Soil samples were taken from fallow blocks prior to planting of the mixed species cover crops.

●●●● Outcome

With the support of Project Catalyst and Nutrien Ag Solutions the grower has adopted beneficial and sustainable farming practice changes across his farm. The main focus has been on improving the quality of water leaving the paddock and reducing potential environmental effects and on the Great Barrier Reef. The grower has achieved a projected sediment saving of 7.24t. The Grower has been provided with a compliant Nutrient Management Plan which guides a Best Management Practice approach to farming and the environment. The grower has taken advice that has helped to efficiently manage nutrients in response to their 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.



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