



# Case Study

Multi-Species Fallow Used to Break the Mono-Culture, Increase Ground-cover and Better Manage Water.



<b>LANDHOLDER</b>	Alan Farquhar
<b>LOCATION</b>	Belmunda
<b>CATCHMENT</b>	Constant Creek
<b>RAINFALL</b>	Average 1600mm/year
<b>PROPERTY SIZE</b>	192 ha
<b>ON-GROUND PROVIDER</b>	Farmacist Pty Ltd Author: Che Trendell

**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.



Fig.1 Alan's multi-species fallow- cowpea, soybean & sunflower



Fig.2 The 12 species mix planted in December 2020



Great Barrier  
Reef Foundation



## ●●●● Goal

To plant green manure fallow crops that improve soil biology while reducing the risk of dissolved inorganic nitrogen (DIN) loss from paddock water runoff.



Fig.3 Alan Farquhar inspecting the health of the local catchment

## ●●●● Overview

As demonstrated through previous industry research projects and Project Catalyst trial work, breaking the sugarcane mono-culture has shown to reduce root pathogens, reduce plant parasitic nematodes and increase soil microbial biomass. Alan sought to incorporate multi-species crops, including legumes, into his farming system to achieve these goals.

He also aimed to maintain ground cover to reduce runoff and reduce water logging over summer.

According to Alan, planting cover crops needed to fit with his zonal tillage farming system and not disturb the established growing beds.



Fig.4 Alan's mixed species fallow consisting of sunflower, cowpea and soybean.

## ●●●● Action

Alan, in consultation with Farmacist, decided to break his sugarcane mono-culture and introduce a cover crop over the 2019-2020 summer.

He chose to grow a multi-species cover crop that consisted of soybean, sunflower and cowpea.

The crop had mixed success in establishment mainly due to prolonged dry conditions in late 2019, followed by excessive rain in January 2020.

Given the weather constraints, Alan was still satisfied the cover crops were able to achieve the goals of providing ground cover and reducing water-logging over the wet season.

The cover crops were worked back into the ground, further increasing the positive impact by incorporating organic matter into the soil.

## ●●●● Outcome

Alan regards his first multi-species cover crop as a success.

Due to the positive outcomes from this fallow crop, Alan has now planted 15 hectares of the 2020-2021 fallow blocks with cover crops.

Alan provides, "We are currently looking at ways to plant cover crops which does not require entire blocks to be cultivated. We want to modify our existing equipment, rather than purchase a planter, so we can zonally spread seed while lightly cultivating only that growing area. The cover crops will be sprayed out, and the area zonally cultivated before planting sugar cane."

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