



Case Study

Comparing Mixed Species Fallow to Bare Fallow



LANDHOLDER	Damian Wirth
LOCATION	Garradunga
CATCHMENT	Johnstone
RAINFALL	3500mm
PROPERTY SIZE	67.7ha
ON-GROUND PROVIDER	CANEGROWERS Innisfail

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.



Trial block after planting fallow crop



Fallow crop four months after plant



Great Barrier Reef Foundation



Goal

To improve soil health and productivity through the implementation of mixed species fallow cropping.



2020 plant cane following fallow crops

Overview

After attending a Regenerative Cane Farming Forum in Ingham in 2018, Damian decided that he would like to trial mixed species fallow cropping on his farm. Some of the farm was previously grazing land and as a result, grass weeds are a major problem. Due to this, the decision was made not to include grass species in the fallow seed mix to allow better control of grass weeds during the fallow period.

Action

Species mix chosen:

Seed Variety	Mix 1 (kg/ha)	Mix 2 (kg/ha)
Leichardt	10	7
Ebony	6	8
Meringa	6	8
Dolchos	15	10
Sunflower	2	2
Total	39	35

Trial block was fully cultivated prior to planting the fallow crop.

Fallow crop was planted on the 7/12/2019, two strips were left as bare fallow to compare plant cane yield.

Biomass samples were taken on 4/3/2020 & 9/5/2020

Grass weeds were controlled with selective herbicide.

Fallow crop sprayed out and cultivated with bed renovator twice to prepare block for planting.

Developed a whole of farm Nutrient Management Plan, accounting for nitrogen contribution from the legume crop.

Sugarcane planted on 27/10/2020



Damian's planter.

Outcome

Both species mix performed well however, none of the sunflower seed germinated (suspect that this is because the seed was birdseed rather than seed grade). Fallow crop dry weight biomass results:

	Mix 1	Mix 2
Sunflower	0	0
Cowpea	4710	6960
Soybean	190	510
Dolichos	1190	350
Total (kg/ha)	6090	7820

Fallow crop biomass samples taken 3 months after planting. Nitrogen (N) contributions were estimated based on plant N% from SIX EASY STEPS® guidelines (Soybean 3.5%, Cowpea 2.8% & Dolichos 2.3%), with Mix 1 producing an estimated total of 166kg/ha N and Mix 2 producing an estimated total of 221kg/ha N.

The following sugarcane crop was planted with CK66S @ 247kg/ha and Damian did not topdress the plant cane as a result of the fallow crop N contribution.