

# Project Catalyst Trial Report

## Mixed Species Fallow

### Grower Information

<b>Grower Name:</b>	Clint Reynolds
<b>Entity Name:</b>	Ferngain
<b>Trial Farm No/Name:</b>	5447 blocks 29.1 & 29.2
<b>Mill Area:</b>	Mossman
<b>Total Farm Area ha:</b>	611.09
<b>No. Years Farming:</b>	25+
<b>Trial Subdistrict:</b>	Daintree
<b>Area under Cane ha:</b>	336.35

### Trial Status

**Ended**

## **Background Information**

### **Aim:**

The aim of this project is to test the use of a mixed species fallow, comparing preformed beds to no tillage. We will have one half of the block worked up into preformed beds and the other half not worked. This will also be compared to bare fallow. Depending on the block and weed pressure, usual practice is either to have a sprayed out fallow (with trash blanket) or to have a legume fallow, usually cowpea.

### **Background: (Rationale for why this might work)**

Mixed species fallow bring different benefits depending on the species used, some helping with water infiltration, nitrogen contribution by fixing N, ground cover, reducing harmful nematode species and improving soil moisture.

### **Potential Water Quality Benefit:**

Cover for the wet season, less chance of erosion. Fixation of Nitrogen in fallow period means a discount of applied nitrogen fertiliser for subsequent crop.

### **Expected Outcome of Trial:**

Potential yield increase in subsequent crop, soil health improved.

### **Service provider contact:**

Mossman Ag Services

### **Where did this idea come from:**

Clint Reynolds and Mossman Ag Services agronomy staff

<b>Plan - Project Activities</b>	<b>Date : (mth/year to be undertaken)</b>	<b>Activities :(breakdown of each activity for each stage)</b>
<b>Stage 1</b>	December 2017	Choose suitable trial site with grower and MAS staff. Seek agronomic advice for trial design. Develop work plan for trials. Soil and product testing (if applicable). Set up trial sites.
<b>Stage 2</b>	January 2019	Set out trial with grower. Monitor Trial.
<b>Stage 3</b>	August 2019	Plant cane crop.
<b>Stage 4</b>	August 2020	Harvest Trial, keeping records of strips cut, bin numbers in order to get bin weights and CCS samples from the mill
<b>Stage 5</b>	August 2021	Harvest Trial, keeping records of strips cut, bin numbers in order to get bin weights and CCS samples from the mill

### **Project Trial site details**

<b>Trial Crop:</b>	Cane
<b>Variety: Rat/Plt:</b>	Fallow
<b>Trial Block No/Name:</b>	29.1 and 29.2
<b>Trial Block Size Ha:</b>	18.85
<b>Trial Block Position (GPS):</b>	-16.291316; 145.390324
<b>Soil Type:</b>	Coom/Daintree

### Block History, Trial Design:

North ^	Product	Land Preparation	Rows
REP ONE	Soybean	Zero Till 29.1	5
	Cowpea		5
	Bare Fallow		5
	Sunflowers/tillage/cowpea		5
REP TWO	Soybean	Zero Till 29.1	5
	Cowpea		5
	Bare Fallow		5
	Sunflowers/tillage/cowpea		5
REP THREE	Soybean	Zero Till 29.1	5
	Cowpea		7
	Bare Fallow		5
	Sunflowers/tillage/cowpea		5
REP ONE	Sunflowers/tillage/cowpea	Preformed Beds	5
	Bare Fallow	29.2	5
	Cowpea		5
	Soybean		5
REP TWO	Sunflowers/tillage/cowpea	Preformed Beds	5
	Bare Fallow	29.2	5
	Cowpea		5
	Soybean		5
REP THREE	Sunflowers/tillage/cowpea	Preformed Beds	5
	Bare Fallow	29.2	5
	Cowpea		5
	Soybean		5

**Treatments:**

**Soybean = 50kg/ha inoculated**

**Cowpea = 25kg/ha inoculated**

Trial mix:	ratio	kg
Sunflowers	1	5
Cowpea	1.5	7.5
Soybean	1.5	7.5
Tillage radish	0.5	2.5
Centrosema	0.2	1

**Mixed species =**

**Results:**

The trial was planted successfully, but due to a large rain event about 10 days after planting and then another rain event a month after planting the block became inundated and caused most of the trial to become completely submerged and waterlogged.

The grower has used a mixed species fallow this year in 2019, so he can see benefit in using a mixed species fallow regardless that the trial itself failed.

He found that the cultivated side was too wet while the trash actual reduced waterlogging meaning in the wet areas of Daintree retaining the trash has worked well.

In 2019 the block has been planted to cane and was to be harvested in 2020.

The farm the trial is on has changed owners, we have confirmed with the new owner that they are happy for us to work with the harvester contractor to harvest the trial as planned for 2020.

The trial was harvested in 2020 by the contractor with the new land owners permission. The trial site had a very poor yielding cane crop, when the contractor began harvest it was evident the strips for the treatments were not substantial enough to form a mill sample. It appeared to be lacking fertiliser, potentially not being top dressed due to the change over of ownership.

## Conclusions and comments

Unfortunately due to these circumstances, no harvest data was obtained from the trial. No results can be drawn from the trial directly.

The practice however has been taken up by quite a number of growers in Mossman, who can see benefits on their farms from mixed species fallowing.

### Advantages of this Practice Change:

Increased soil health and productivity/profitability.

### Disadvantages of this Practice Change:

Cost/timing of operation, potential for waterlogging on some blocks.

### Will you be using this practice in the future:

Across the whole farm as practical.

### % of farm you would be confident to use this practice :

Whole farm (all fallow blocks) as necessary.