

Catalyst Project FINAL Report

Grower Information

Grower Name:	Sam Di Mauro
Entity Name:	S, C & SA Di Mauro
Trial Farm No/Name:	F4001
Mill Area:	Tully Sugar Mill
Total Farm Area ha:	249.89 of 528.76
No. Years Farming:	30 +
Trial Subdistrict:	Kennedy
Area under Cane ha:	249.89 of 478.89

Background Information

Aim: Evaluate the benefits of mill mud banded with and without reduced fertilizer rates on last ratoon crops, and into the proceeding fallow and plant cane crop.

Background: (Rationale for why this might work)

Sam is looking at increasing biological activity in the soil and believes that the mill mud will assist with this. He has previously trialled using Mill mud alone in a last ratoon crop, and suffered some yield loss due to a very dry season, and the mill mud taking longer than expected to start to break down and the nutrients within it becoming available to the plant.

He has started with the last ratoon crop as there is minimal risk of significant yield losses and financial losses with the last ratoon crop and because if the mill mud is applied to the last ratoon crop, the mill mud has had time to become incorporated into the soil prior to soil testing for the next crop cycle, so correct amendments and nutritional plan can be implemented.

Potential Water Quality Benefit:

Applying mill mud as an alternative to fertilizer or in the presence of low rates of fertilizer on the last ratoon crop where it can be broken down and utilized by the crop, and reduce the reliance on synthetic fertilizers.

Expected Outcome of Trial:

We expect that there may be some potential yield loss from the mill mud only treatments depending on the timing of rainfall, but there should be some improved yields in the following plant crops with less inputs.

Service provider contact: Charissa Rixon of T.R.A.P. Services

Where did this idea come from: This idea came from previous trials, and from the growers pursuit of improved soil health.

Growers Comments:

Plan - Project Activities	Date : (mth/year to be undertaken)	Activities :(breakdown of each activity for each stage)
Stage 1	Nov/Dec 2016	Design and mark out field trial. Lay trial down according to plan
Stage 2	Dec/Jan 2017	Harvest and Fallow Trial Revise trial design, as only part of the block is to be fallowed the remainder is to be ratooned. Reapply treatments on ratooning section. Collect and interpret data Soil sample from treatments to see if there are any differences. Implement Fallow management
Stage 3	May – Aug 2018	Plant fallowed Section with revised nutrient plan
Stage 4	Nov/Dec 2018	Harvest and Fallow Ratooned section Apply revised nutrient plan Collect and interpret data
Stage 5	May – Aug 2019	Plant fallowed Section with revised nutrient plan
Stage 6	Aug – Oct 2019	Harvest Plant Cane Collect and interpret data

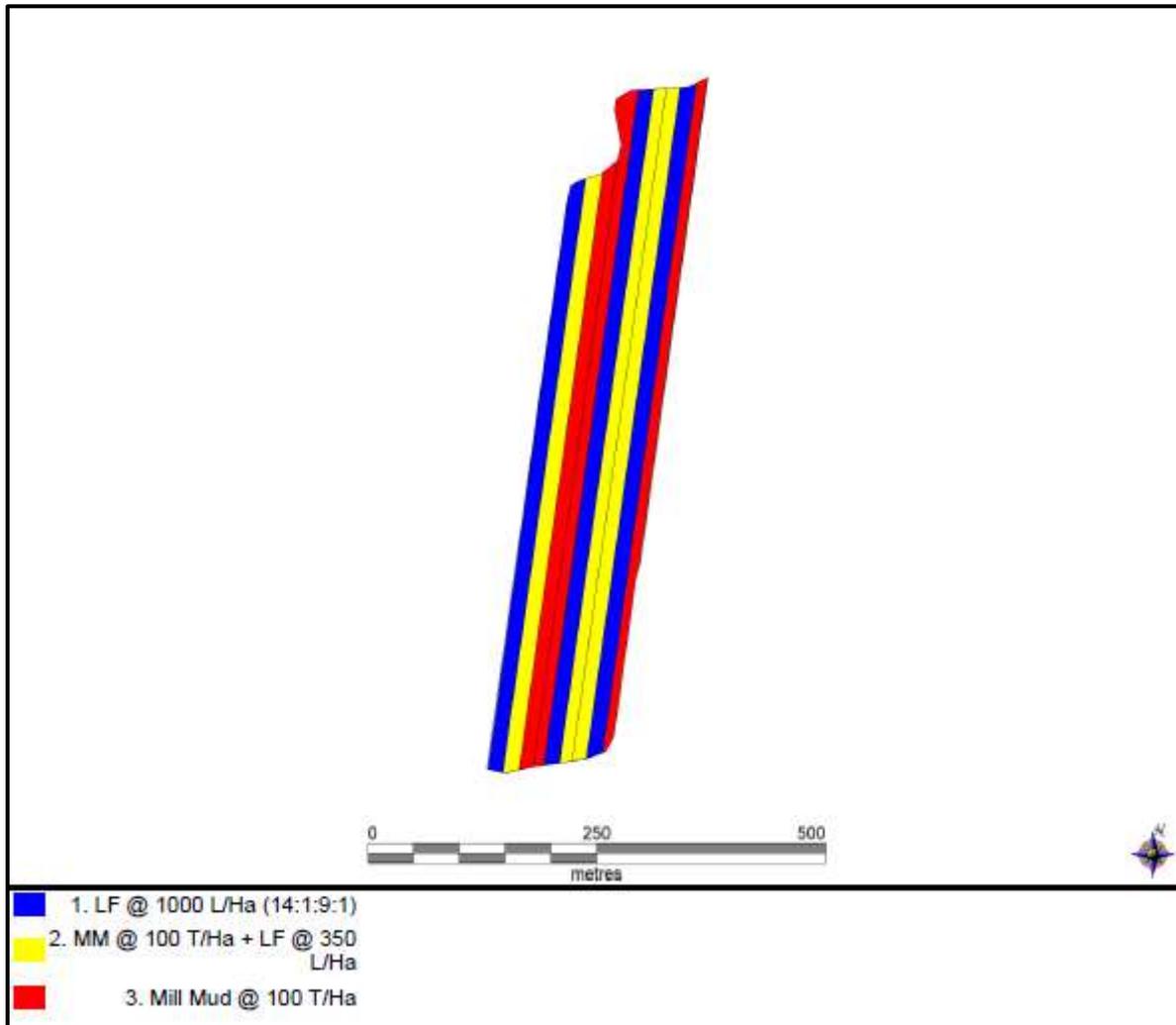
Project Trial site details

Trial Crop:	Sugarcane
Variety: Rat/Plt:	Q241 (Rep 1) Q231 (Rep 2 & 3) 3 rd Ratoon
Trial Block No/Name:	F4001 Block 3A & 3B
Trial Block Size Ha:	9.85
Trial Block Position (GPS):	18.0631°S 145.9135°E
Soil Type:	Malbon Soil Series

Block History, Trial Design:

This farm was historically a cattle property that has been recently developed into a cane farm. This is the first crop cycle of sugarcane grown on this property.

The trial consists of 3 treatments replicated 3 times across the field as large scale strips.



Treatments:

1. Liquaforce Fertiliser (14% N : 1% P : 9% K: 1% S) @ 1000 L/Ha (Grower Standard)
2. Liquaforce Fertiliser (14% N : 1% P : 9% K: 1% S) @ 350 L/Ha + Mill Mud @ 100 t/ha
3. Mill Mud @ 100 t/ha

Results:

2015 Harvest

Treatment		tc/ha		CCS		ts/ha	
1	Liquaforce Fert (14:1:9:1) @ 1000 L/Ha	51.11	-	9.39	-	4.84	-
2	Liquaforce Fert (14:1:9:1) @ 350 L/Ha + Mill Mud @ 100 t/ha	66.23	-	9.09	-	5.98	-
3	Mill Mud @ 100 t/ha	70.49	-	8.65	-	6.10	-
p-value (p=0.05)		0.2179		0.2994		0.4652	
LSD (p = 0.05)		N/A		N/A		N/A	

Conclusions and comments

There was no statistical differences between the treatments. The addition of mill mud had a tendency to reduce CCS, but have a greater yield, however none of the differences were statistically significant.

From this trial you could conclude that it may be possible to eliminate the addition of synthetic fertilizer to the last/late ratoon crop if mill mud is applied at 100 t/ha, however, a previous trial has shown a sugar yield loss where mill mud was applied alone.

Advantages of this Practice Change:

This allows mill mud to be applied to a last or late ratoon crop instead of fertilizer, rather than applying the mill mud to the fallows. This means that there are plants there to utilize the available nutrients and to the mill mud can help improve the soils structure and health, and this can be done more quickly in the presence of plant roots. The analysis of mill mud is also very variable so this allows accurate nutrient deductions to be made, as soil testing would occur approximately 12 months after the mill mud has been applied.

Disadvantages of this Practice Change:

If it is very dry in the months immediately proceeding the mill mud application, some yield loss may be possible, as seen in an earlier trial, because it takes longer for the nutrients in the mill mud to become available to the plant.

Will you be using this practice in the future:

Looking at modifying this practice to banding small amounts of mill mud annually with reduced rates of fertilizer applied.

Further trials need to be conducted to modify this practice to fit into the whole farming system.

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

Not confident enough yet to implement this practice as further trials is needed to refine the concept.