

# Catalyst Project Progress Report

## Grower Information

<b>Grower Name:</b>	Michael & Peter Ottone
<b>Entity Name:</b>	Ottone & Sons
<b>Trial Farm No/Name:</b>	F4503
<b>Mill Area:</b>	Tully
<b>Total Farm Area ha:</b>	174 Ha
<b>No. Years Farming:</b>	30+
<b>Trial Subdistrict:</b>	Kennedy
<b>Area under Cane ha:</b>	100 Ha

## **Background Information**

### **Aim:**

To evaluate how much we can reduce fertilizer rates and evaluate if the addition of compost tea and biofert will maintain yield equivalent to traditional fertilizer rates.

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

The microbes in the biofert and compost tea, potentially have the ability to increase the availability of nutrients to increase the nutrient use efficiency of the crop.

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

If the fertilizer rates are able to be reduced to these levels in the presence of Compost Tea and Biofert without the loss of productivity, there would be very large water quality benefits as Nitrogen rates being trialled are about one quarter to one third of what is traditionally applied.

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

The low rate of fertilizer with compost tea and biofert, over a crop cycle to be as productive as the traditional rates of synthetic fertilizer.

### **Service provider contact:**

Charissa Rixon – T.R.A.P. Services

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

Research conducted by the grower, and the growers experience using compost tea and biofert in pineapples.

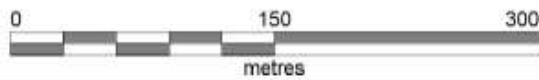
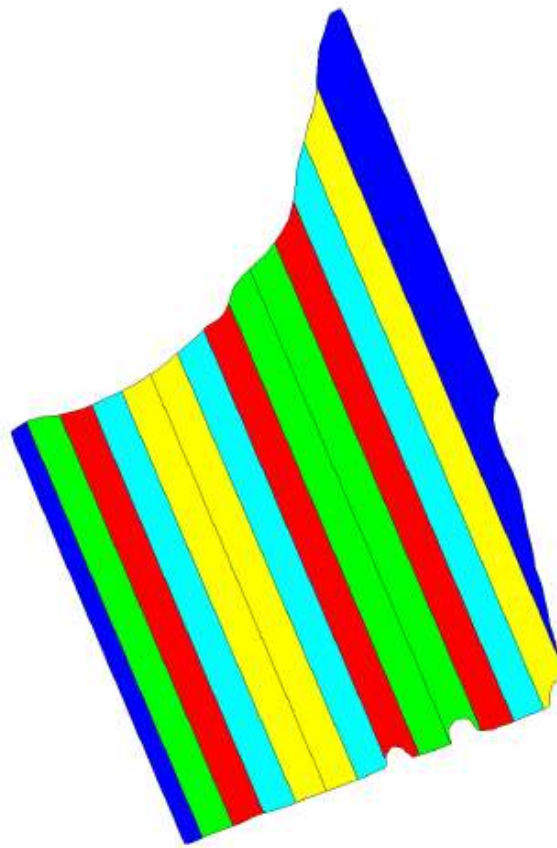
<b><u>Plan - Project Activities</u></b>	<b>Date : (mth/year to be undertaken)</b>	<b>Activities :(breakdown of each activity for each stage)</b>
<b>Stage 1</b>	<b>Sep – Nov 2017</b>	Harvest Existing Trial Collect, collate and analyse data Reapply
<b>Stage 2</b>	<b>Sep – Nov 2018</b>	Harvest Existing Trial Collect, collate and analyse data Reapply
<b>Stage 3</b>	<b>Sep – Nov 2019</b>	Harvest Existing Trial Collect, collate and analyse data Reapply

## Project Trial site details

<b>Trial Crop:</b>	Sugarcane
<b>Variety: Rat/Plt:</b>	Q208
<b>Trial Block No/Name:</b>	F4503 Blk 08
<b>Trial Block Size Ha:</b>	7.74 Ha
<b>Trial Block Position (GPS):</b>	18.1190°S 145.9259°E
<b>Soil Type:</b>	Banyan Soil Series

## Block History, Trial Design:

4 x Treatments x 3 Replicates RB Design. Trial Established in plant Cane in 2012.



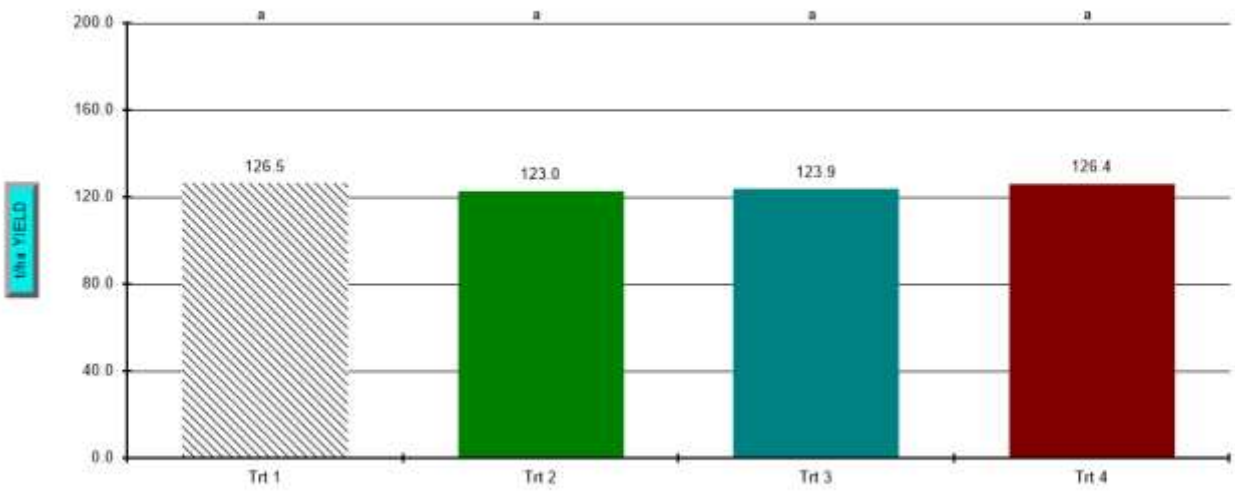
	Buffer
	Treatment 1
	Treatment 2
	Treatment 3
	Treatment 4

### Treatments:

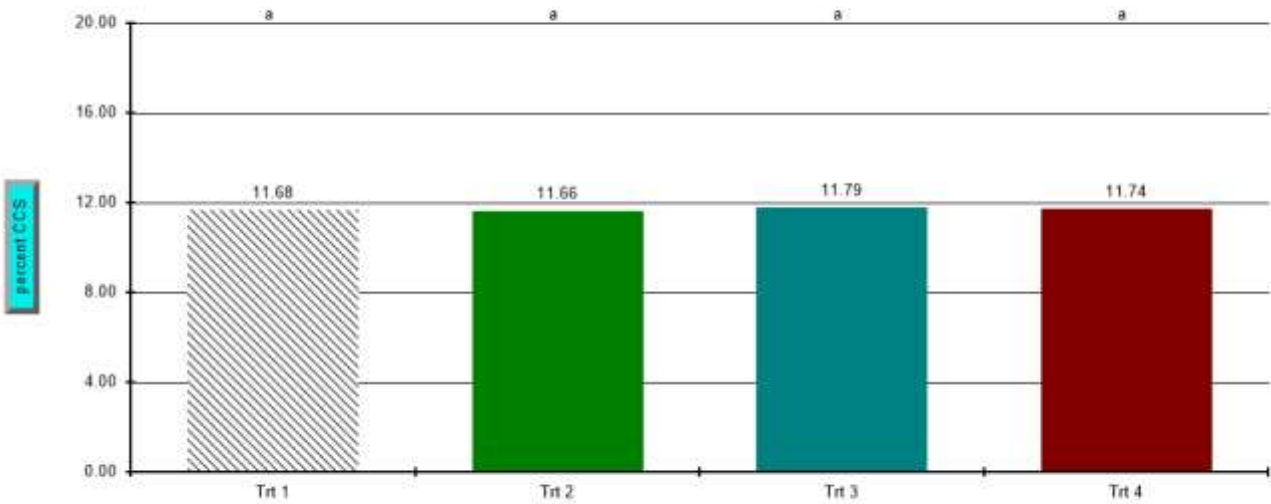
1. Standard - Plant (N 128 P 39 K 102) & Ratoons (N 170 P 20 K 100)
2. Standard + Compost Tea + Biofert - Plant (N 128 P 39 K 102) & Ratoons (N 170 P 20 K 100) + Biofert
3. Reduced Fert + Compost Tea + Biofert - Plant (N 48 P 39 K 55) & Ratoons (N 35 P 28 K 40)
4. Reduced Fert - Plant (N 48 P 39 K 55) & Ratoons (N 35 P 28 K 40)

## Results:

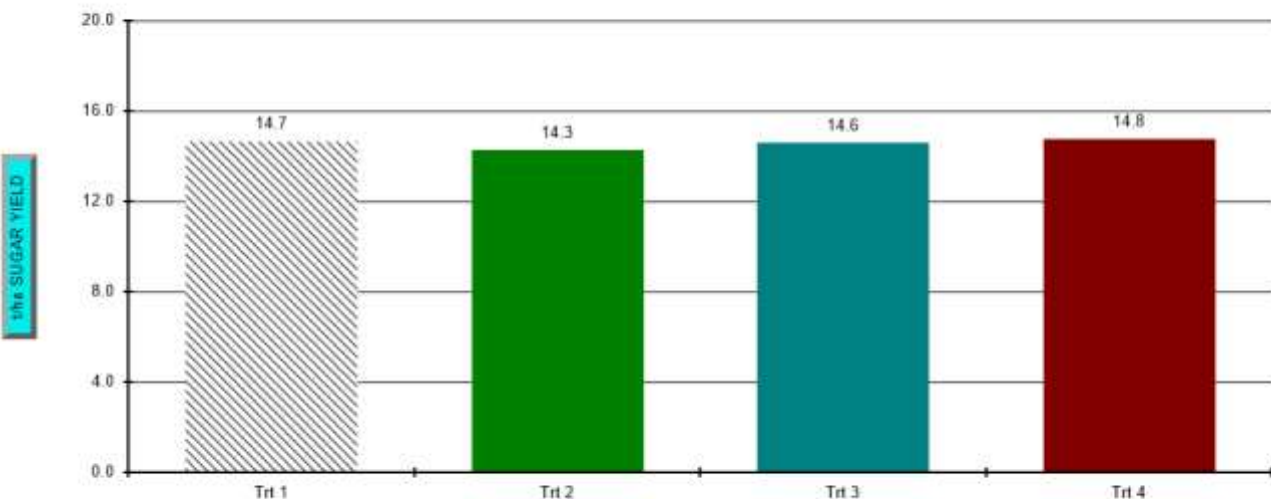
### Ottone Compost Tea Trial - Plant Cane



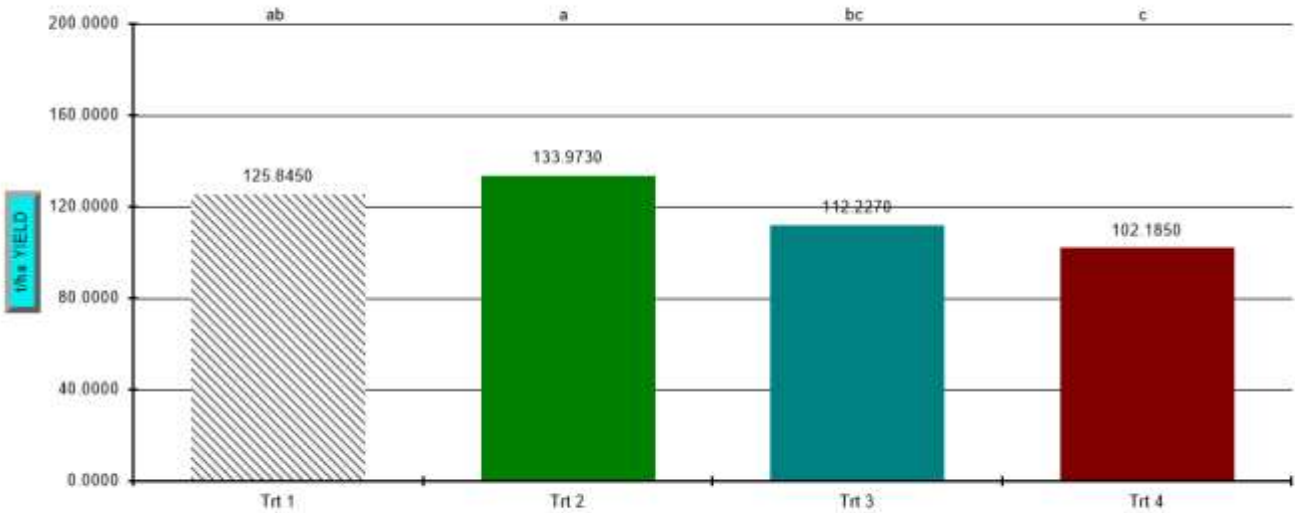
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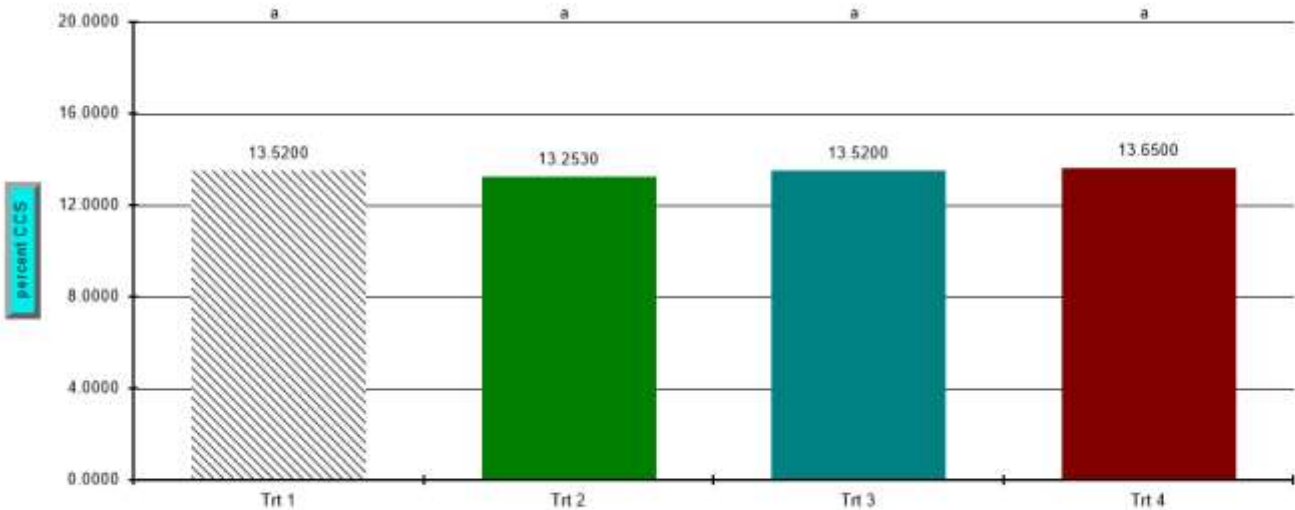
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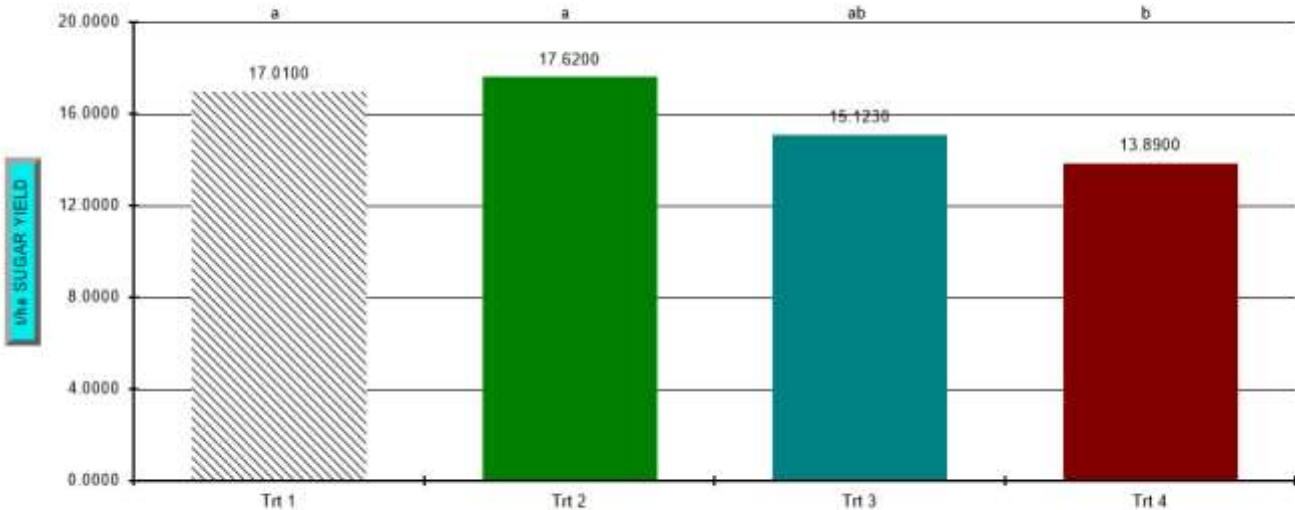
### Ottone Compost Tea Trial - 1st Ratoon



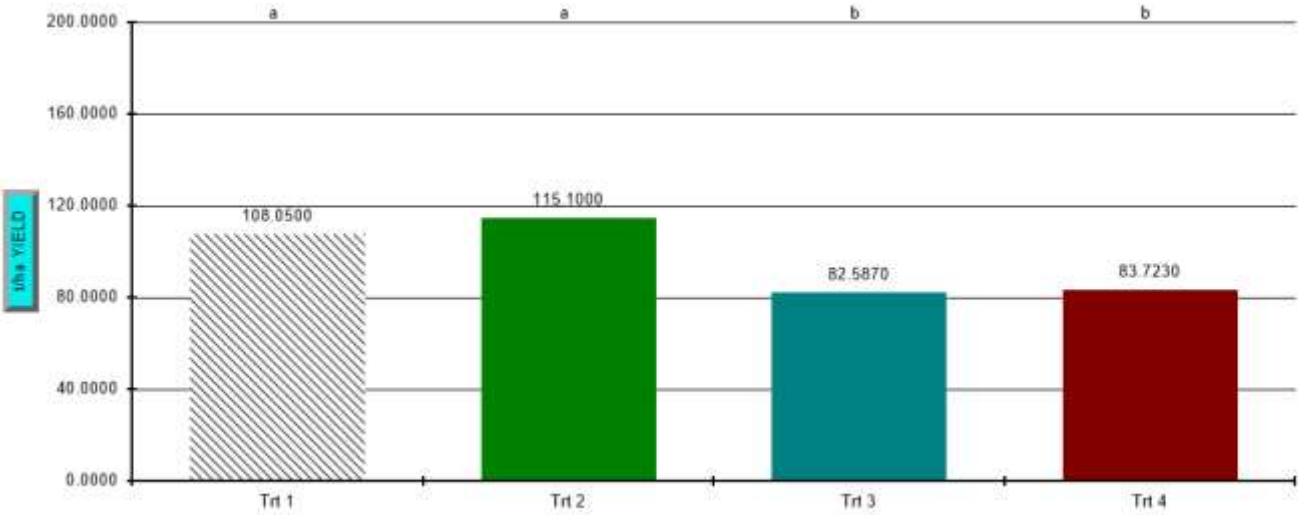
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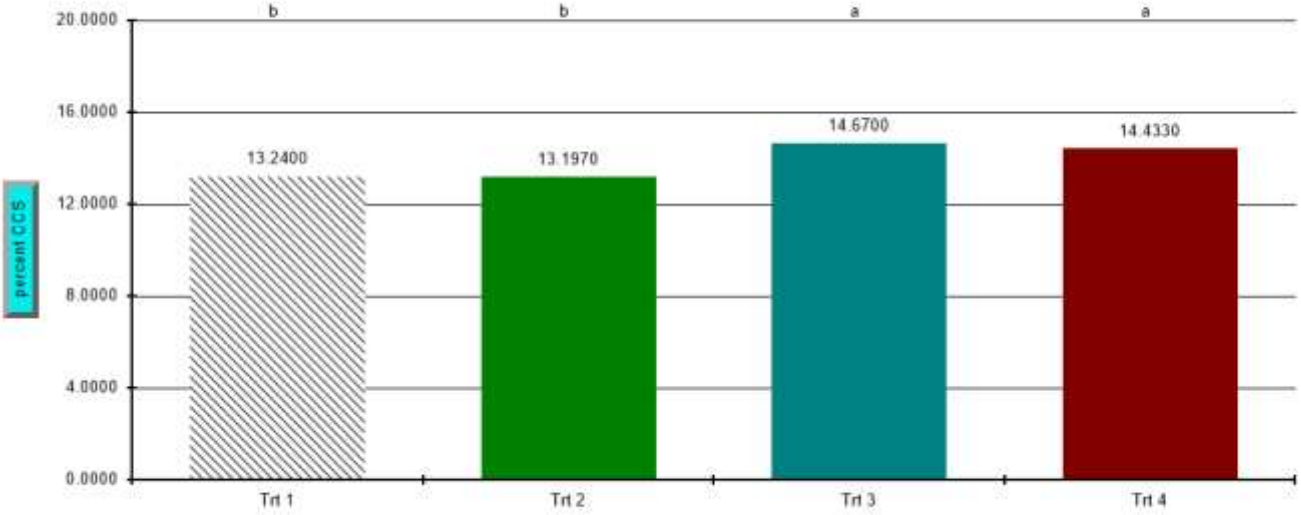
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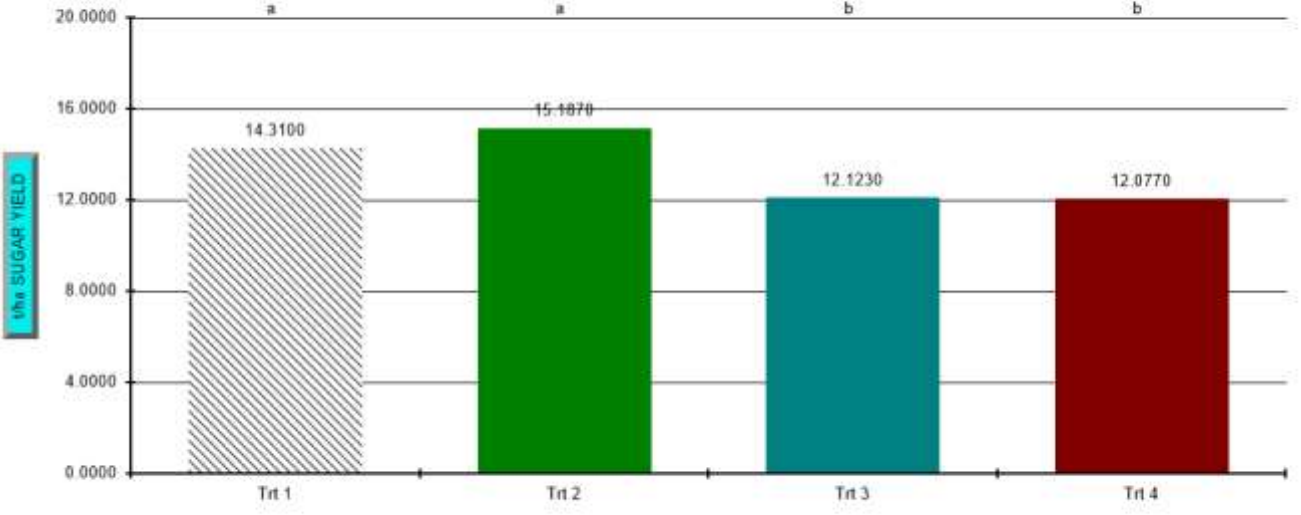
### Ottone Compost Tea Trial - 2nd Ratoon



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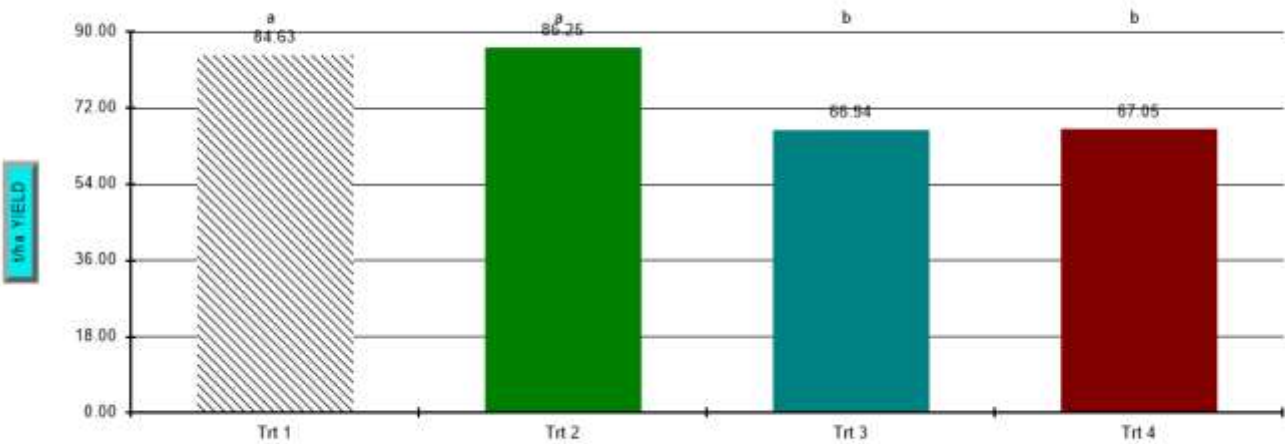


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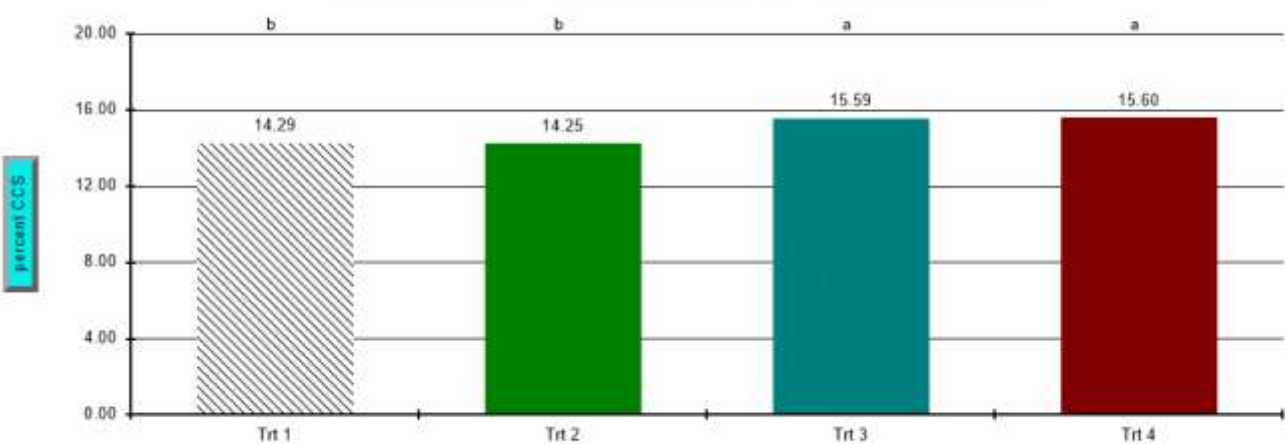




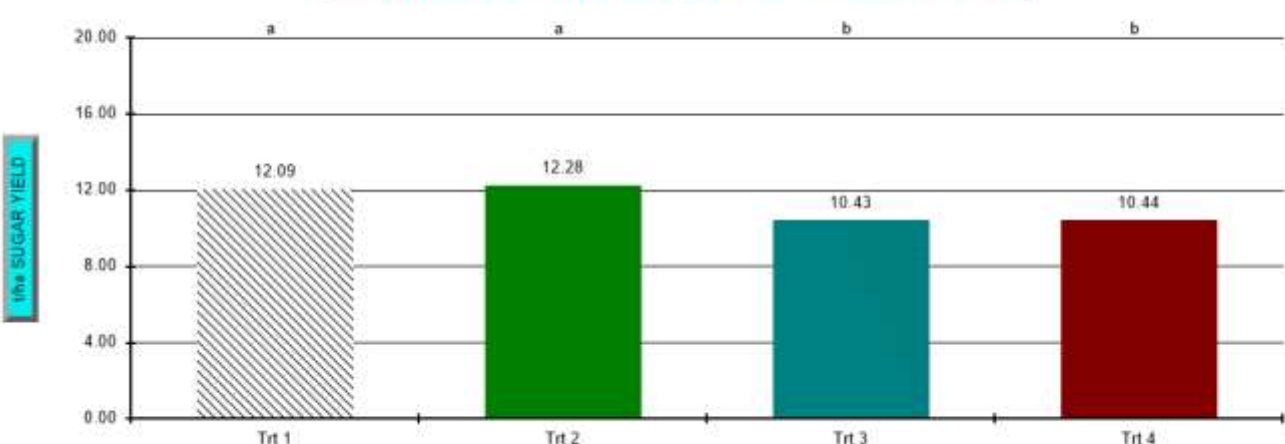
### Ottone Compost Tea Trial - 4th Ratoon



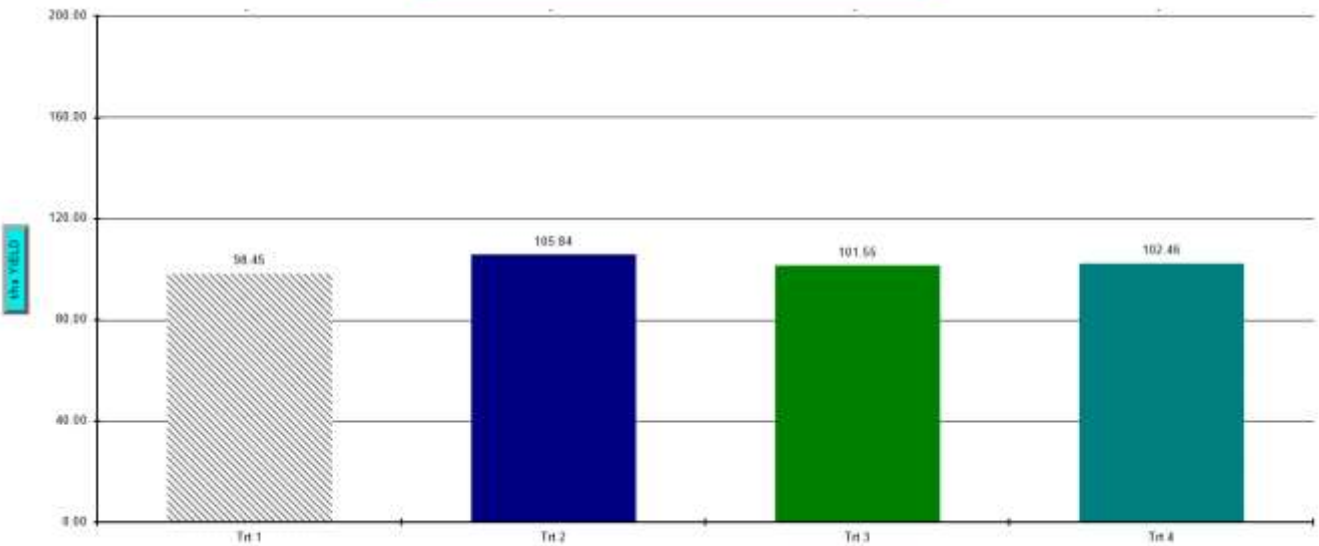
### Ottone Compost Tea Trial - 4th Ratoon



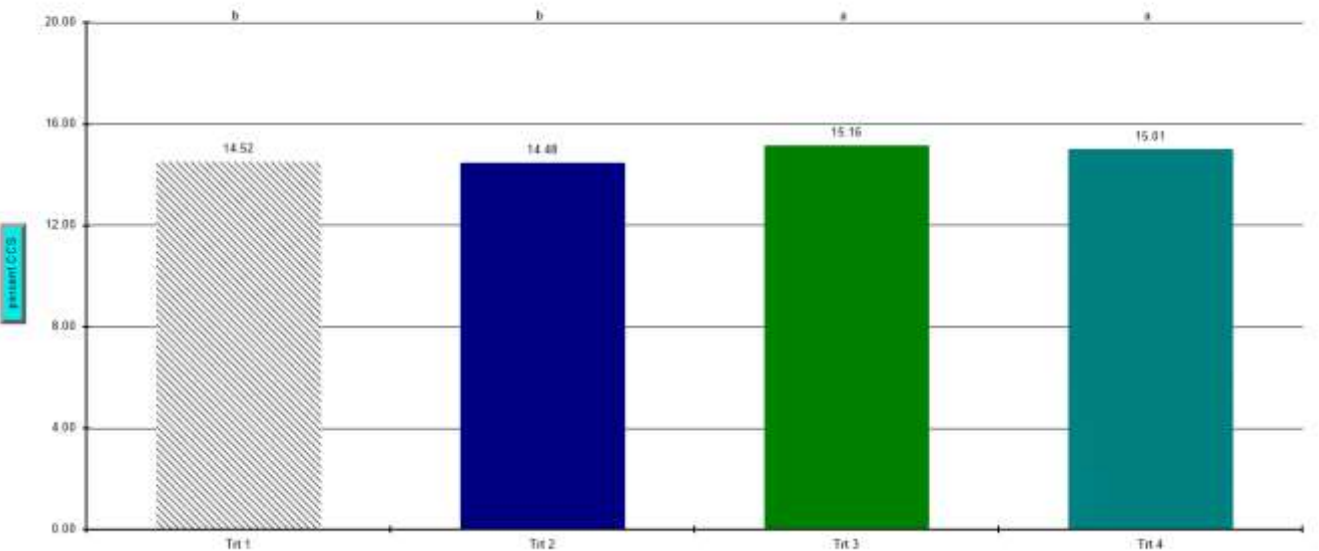
### Ottone Compost Tea Trial - 4th Ratoon



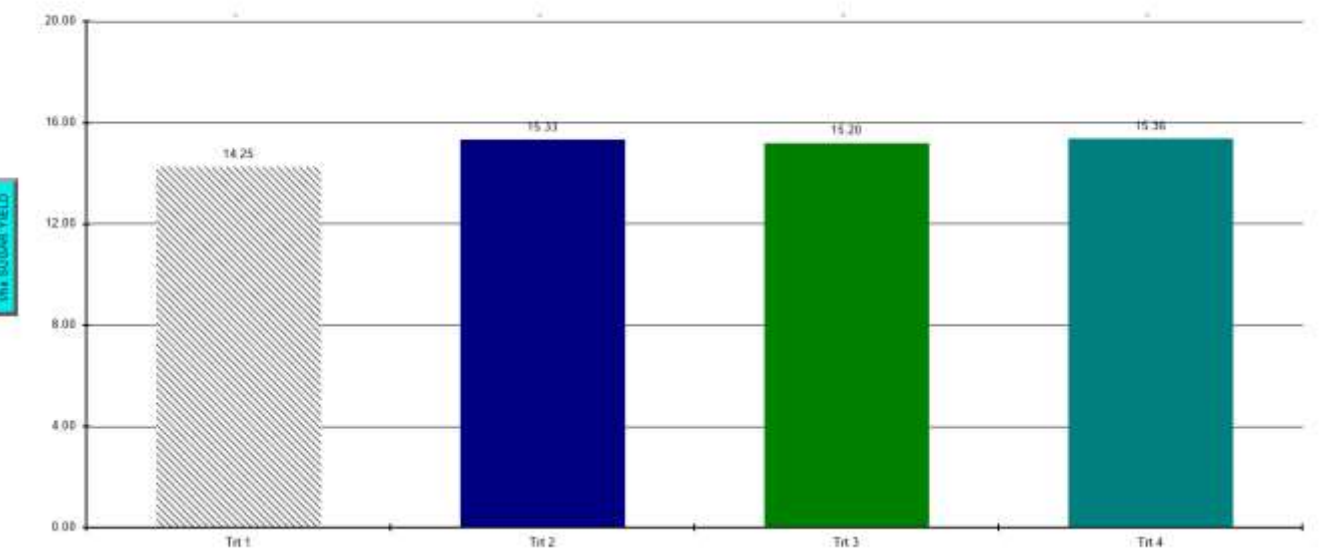
### Ottone Compost Tea Trial - 5th Ratoon



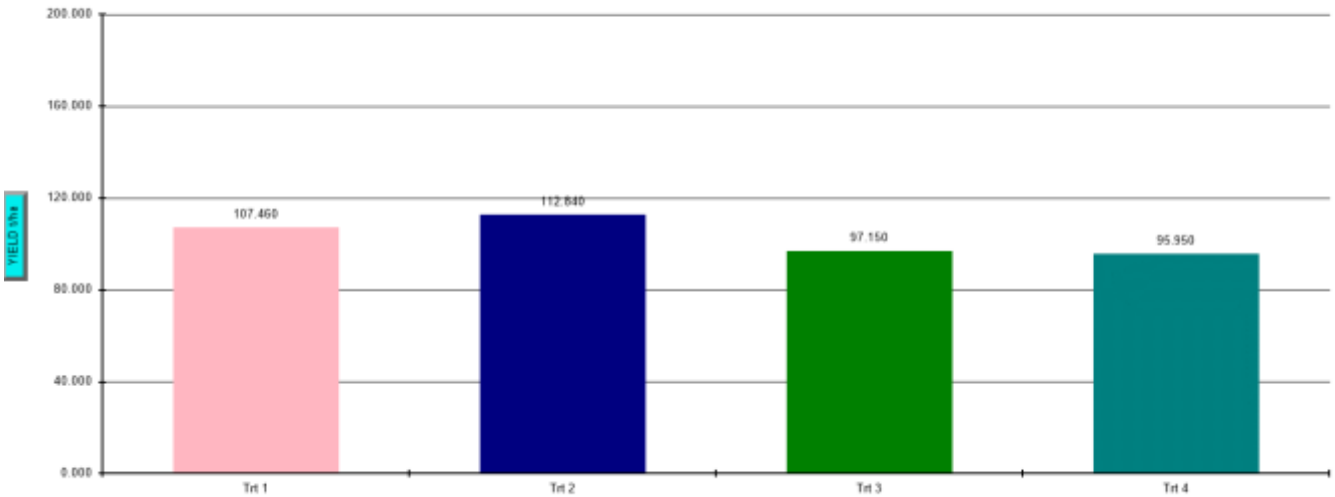
### Ottone Compost Tea Trial - 5th Ratoon



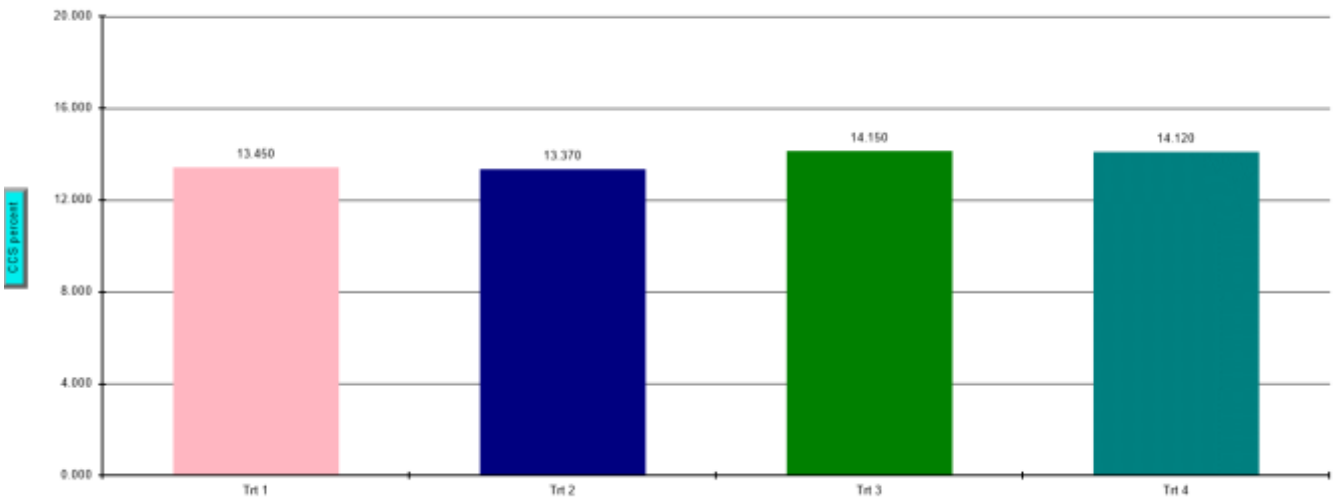
### Ottone Compost Tea Trial - 5th Ratoon



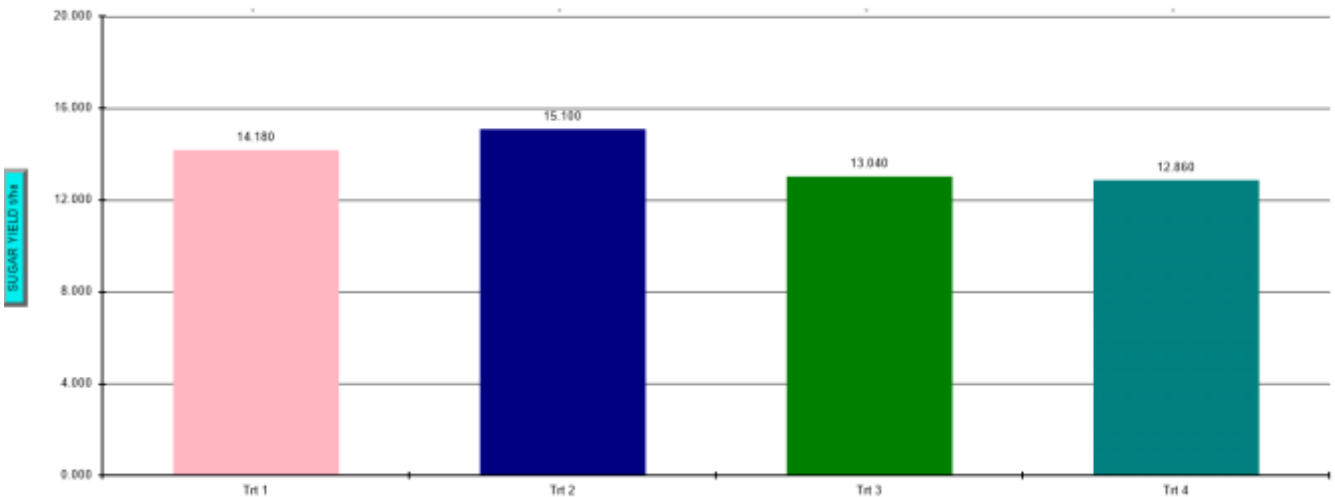
### Ottone Compost Tea Trial - All Years



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## Conclusions and comments

**Plant Cane (2013 Harvest)** – There was no statistical difference between treatments for cane yield or CCS.

**1<sup>st</sup> Ratoon (2014 Harvest)** – There was no significant difference between treatments for CCS.

For cane yield, the two treatments with the full fertilizer rates were not significantly different from one another and neither were the two reduced fertilizer rate treatments.

The treatment with the full fertilizer rate had a significantly higher cane yield compared to the treatment with the reduced fertilizer rate. The treatment with the full fertilizer rate and Compost Tea and Biofert had a significantly higher cane yield compared to the treatment with the reduced fertilizer rate and Compost Tea and Biofert. The cane yield of the treatment with the full rate of fertilizer and the treatment with the low rate of fertilizer and Compost Tea and Biofert was not statistically different.

The treatment with the reduced rate of fertilizer yielded significantly less sugar per hectare compared to either of the full rate fertilizer treatments. The sugar yield of the treatment with the reduced rate of fertilizer and Compost Tea and Biofert was not significantly different to any of the other treatments.

**2<sup>nd</sup> & 4<sup>th</sup> Ratoon (2015 & 2017 Harvest)** – The two treatments with the full rate of fertilizer were not significantly different to each other for cane yield, CCS or sugar yield, neither were the two treatments with the reduced rate of fertilizer. The two treatments with the reduced rate of fertilizer had a significantly lower cane yield and sugar yield compared to the two treatments with the full rate of fertilizer. The two treatments with the full rate of fertilizer had a significantly lower CCS compared to the two treatments with the reduced rate of fertilizer.

**5<sup>th</sup> Ratoon (2018 Harvest)** – There is no significant difference between treatments for cane or sugar yield. However, treatments 1 and 2 (standard fertilizer rates with and without compost tea) had a significantly lower CCS compared to treatments 3 and 4 (reduced rate of fertilizer with and without compost tea), but this didn't translate to significant differences in sugar yield.

### **Advantages of this Practice Change:**

The main advantage is the reduction in nutrient applied and thus potentially reducing the amount of nutrients that may be lost. After taking into consideration the FEAT analysis after the 2015 season, there was no reduction in gross margins.

This is a strategy that could potentially be used when low sugar prices are forecasted, as the economics may not be statistically equivalent at higher sugar prices.

### **Disadvantages of this Practice Change:**

Considering that there is no negative effect at this point on gross margins, we will continue trying this practice. However, there is the potential that the soil nutrients may be being mined and a higher rate of Nitrogen needs to be considered.

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

We have reduced the nutrient rates in about 50% of ratoon crops on the farm, and are applying the compost tea and biofert to help improve soil biology for the longer term.

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

40%