

Project Catalyst Final Report

N rates after Sun hemp

Grower Information

Grower Name:	Richard Hobbs
Entity Name:	HOBBS RE
Trial Farm No/Name:	N rates after sun hemp trial 0216A
Mill Area:	Victoria
Total Farm Area ha:	75 ha
No. Years Farming:	30 years
Trial Subdistrict:	SunnyBank
Area under Cane ha:	70.1 ha

Background Information

Aim: To see how much we can reduce our nitrogen in a plant cane crop after a sun hemp fallow crop.

Background: (Rationale for why this might work)

Sun hemp is known for its high production of nitrogen. There is little information however about how much to reduce the Nitrogen rate after a sun hemp crop for maximum sugarcane production and CCS. We have included several different rates in this trial to see which one will produce the best yield and CCS. This is important to understand as we know that too much nitrogen can make your CCS production low and increases the chance of the cane crop lodging too early in the season. It is also beneficial to understand this in an economical sense as well.

Potential Water Quality Benefit:

By having a legume crop in place, instead of bare fallow, we will reduce the sediment and nutrient loss to water ways significantly. After the sun hemp has been incorporated and the cane planted there is an opportunity to greatly reduce our chemical fertilizer rate which will reduce chances of nutrient runoff into waterways.

Expected Outcome of Trial:

That we should be able to significantly reduce our chemical fertilizer without reducing yield or sugar.

Service provider contact: Megan Zahmel 0447 317 102

Where did this idea come from: Richard Hobbs.

Plan - Project Activities	Date : (mth/year to be undertaken)	Activities : (breakdown of each activity for each stage)
Stage 1	Establish trial 2016/2017	Have baseline nutrient soil samples taken. – 21 st of Sept 2016 Trial plan designed. Sun hemp planted – 31/12/2016 Sun hemp slashed and left as green manure – 1/04/2017
Stage 2	Sampling 2017/2018	Q183 mound planted 18/06/2017 1 st set of 3 rd leaf samples – 12/12/2017 2 nd set of 3 rd leaf samples – late March 2018 Harvested for yield and CCS data – 2 nd of September 2018
Stage 3		
Stage 4		
Stage 5		
Stage 6		

Project Trial site details

Trial Crop:	Sugar Cane
Variety:	Q183
Rat/Plt:	Plant 2017
Trial Block No/Name:	Farm # 216A Block 6-3
Trial Block Size Ha:	4.82 ha
Trial Block Position (GPS):	Refer to google earth map
Soil Type:	clay

Block History, Trial Design:

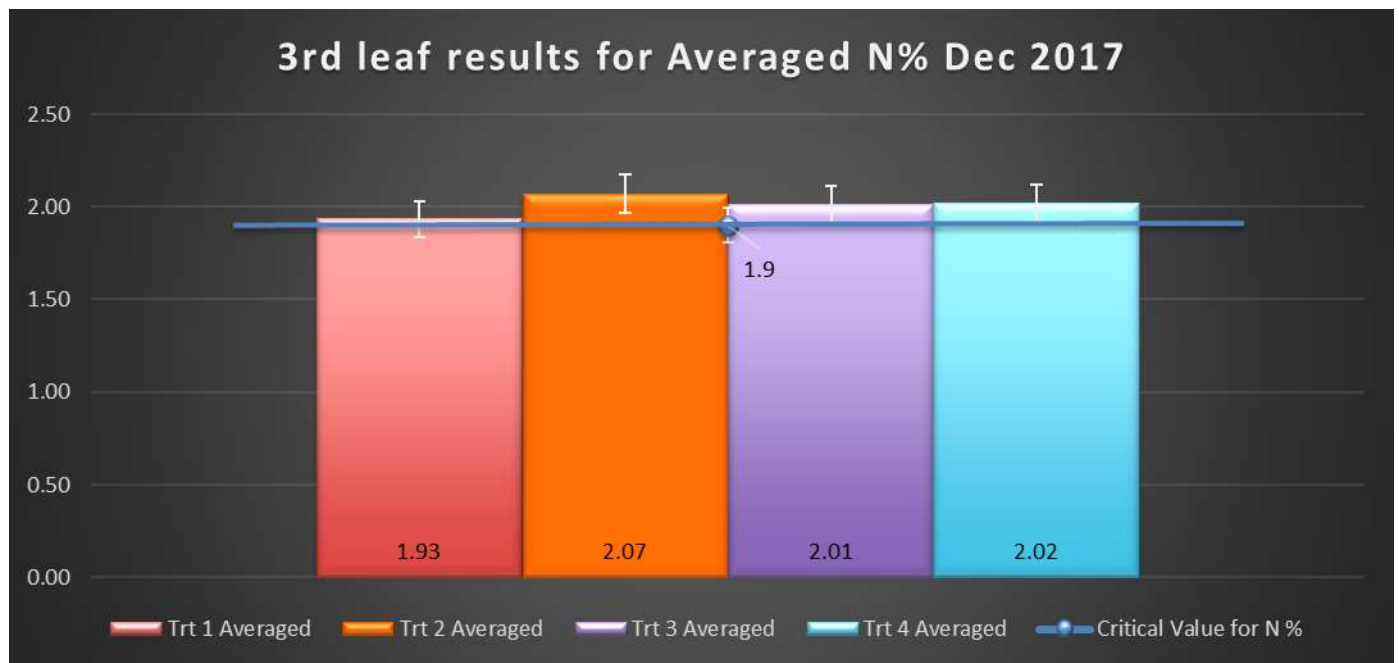
Trial Design				B# 6-3							
Nitrogen rate after Sunn Hemp											
R.Hobbs											
Q183				←							
Dead end				Renoff Road							
Rep 1				Rep 3				Rep 2			
Trt 3 6 rows Plot 12	Trt 2 6 rows Plot 11	Trt 1 6 rows Plot 10	Trt 4 6 rows Plot 9	Trt 2 6 rows Plot 8	Trt 3 6 rows Plot 7	Trt 1 6 rows Plot 6	Trt 4 6 rows Plot 5	Trt 4 6 rows Plot 4	Trt 3 6 rows Plot 3	Trt 2 6 rows Plot 2	Trt 1 6 rows Plot 1
Trt 1		18 kg N		Control							
Trt 2		43 kg N									
Trt 3		68 kg N									
Trt 4		93 kg N									

Treatments:

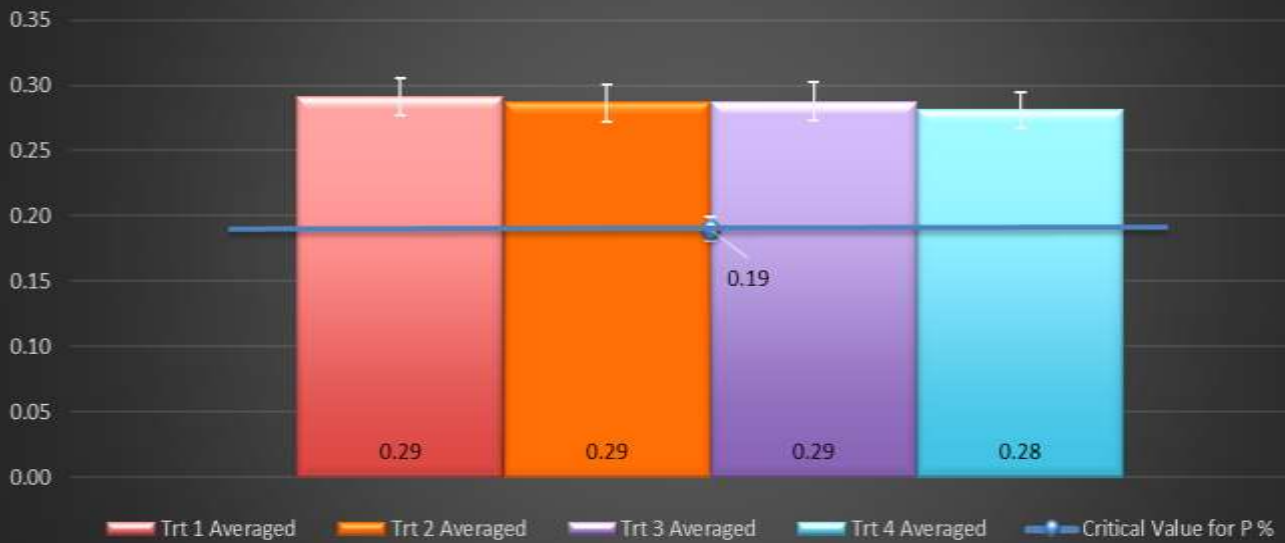
Trt 1	18 kg N	Control
Trt 2	43 kg N	
Trt 3	68 kg N	
Trt 4	93 kg N	

Results:

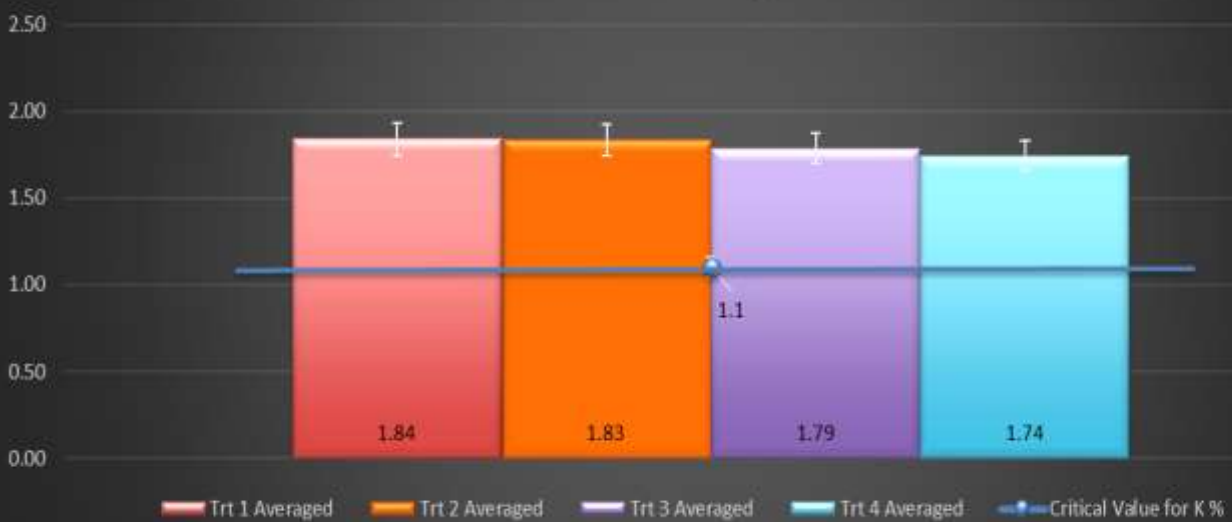
3rd leaf results taken in Dec 2017



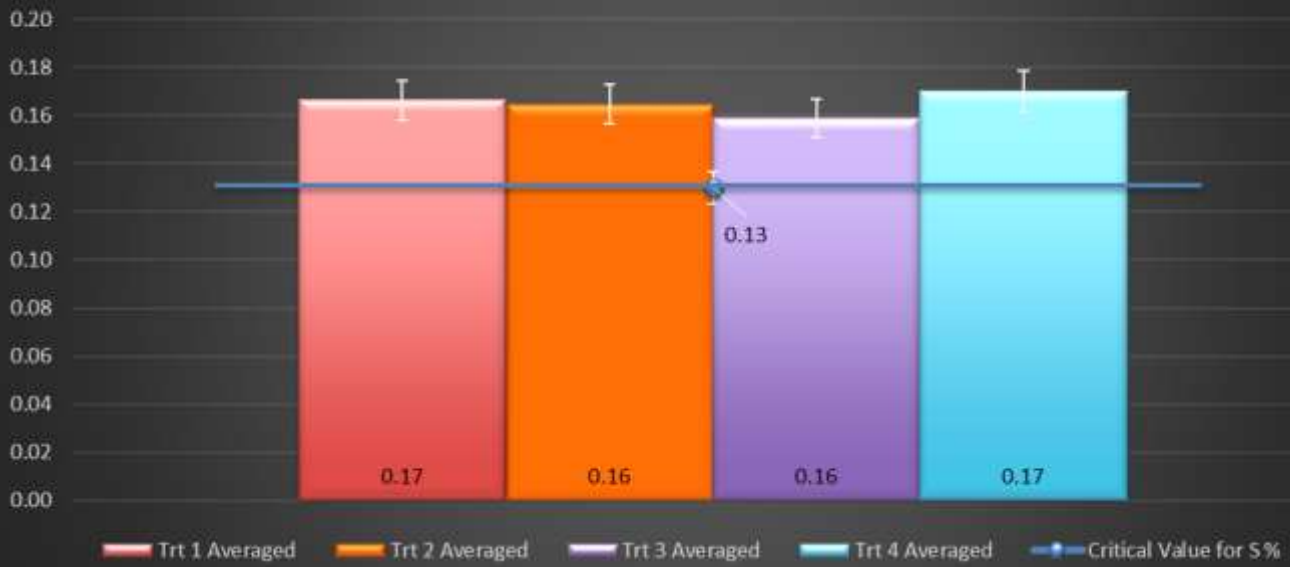
3rd leaf results for averaged P% Dec 2017



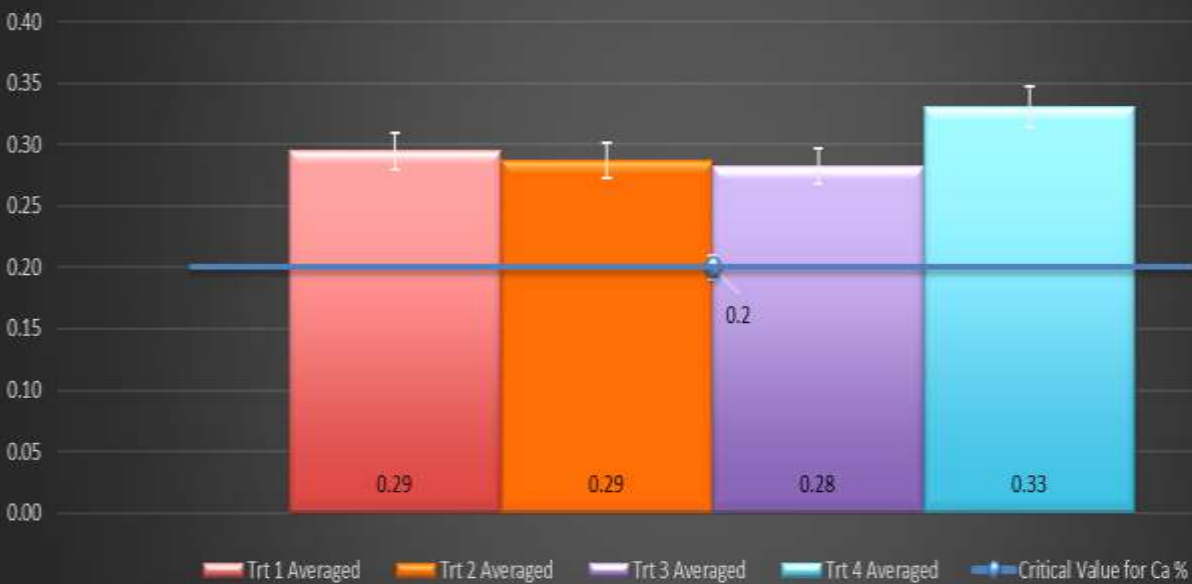
3rd leaf results for Averaged K% Dec 2017



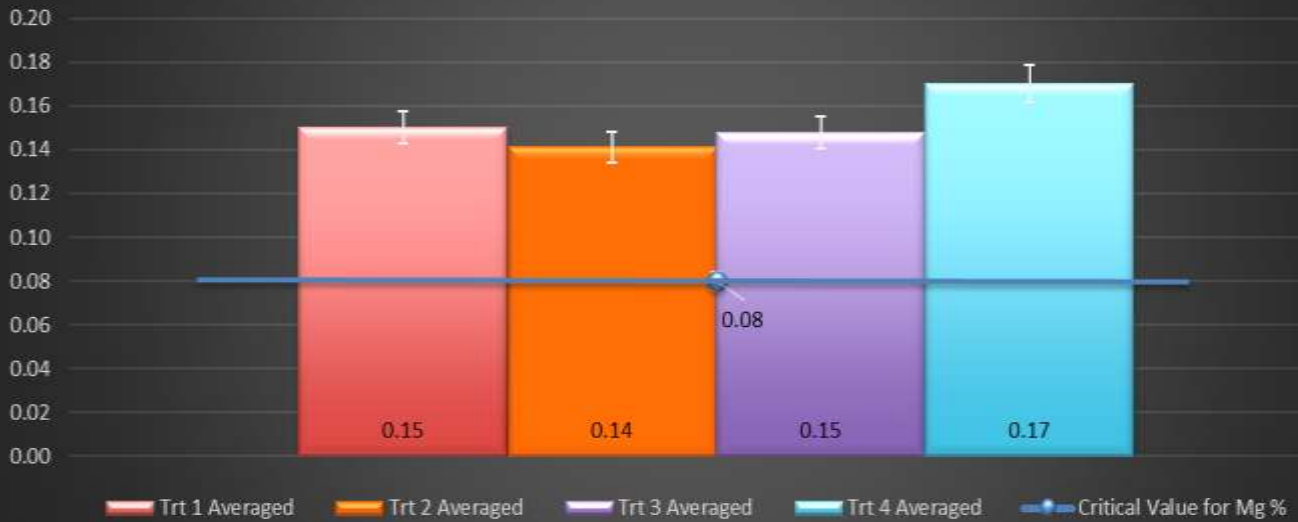
3rd leaf results for averaged S% Dec 2017



3rd leaf results averaged from Ca% Dec 2017

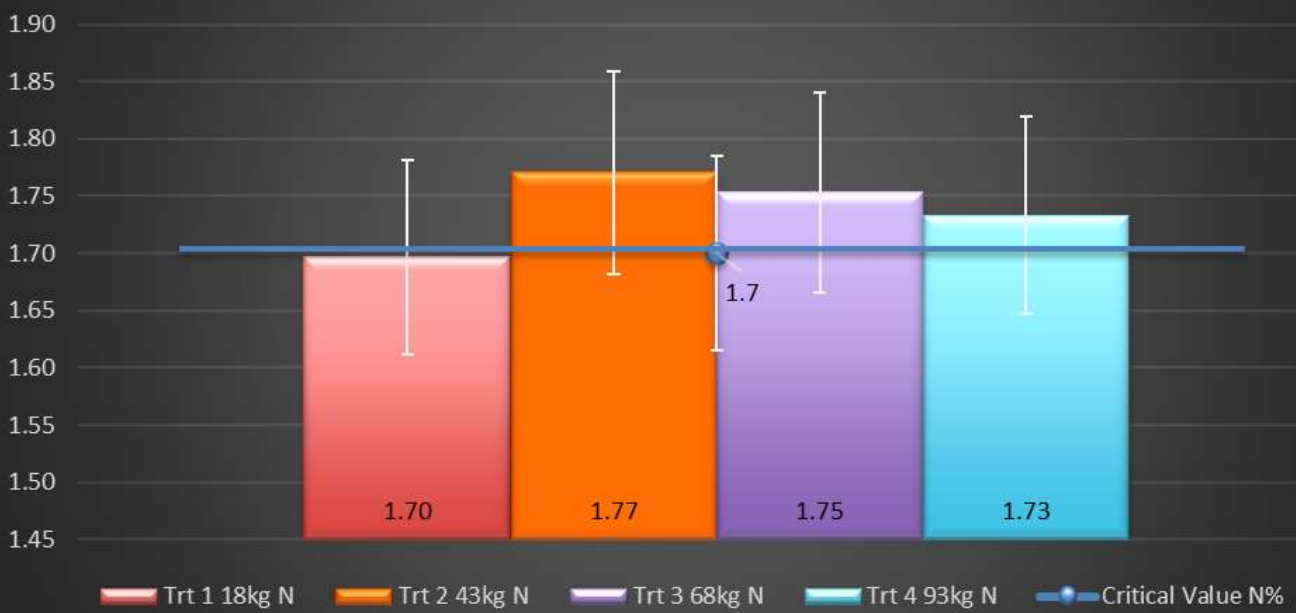


3rd leaf results averaged for Mg% Dec 2017

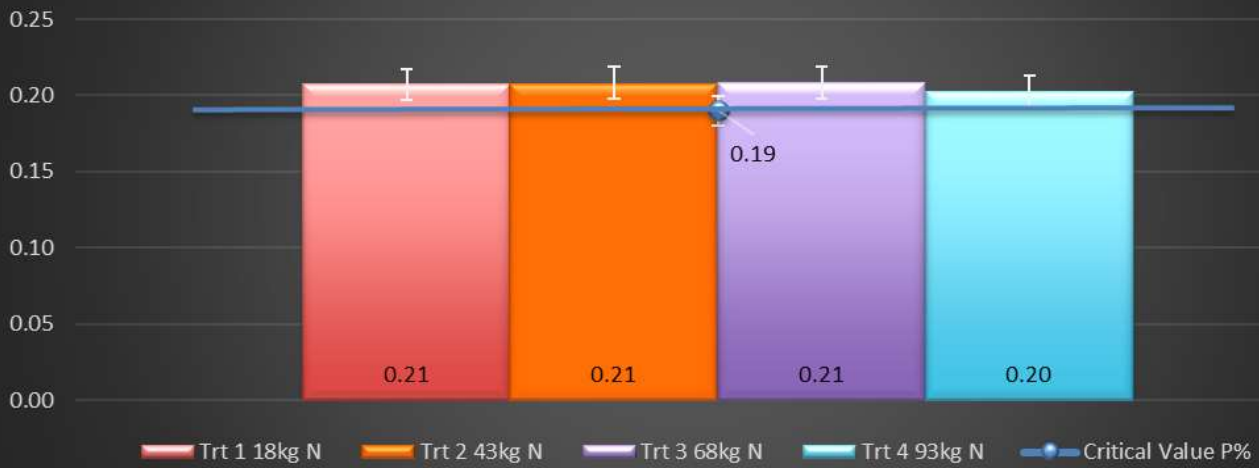


3rd leaf results taken 2018

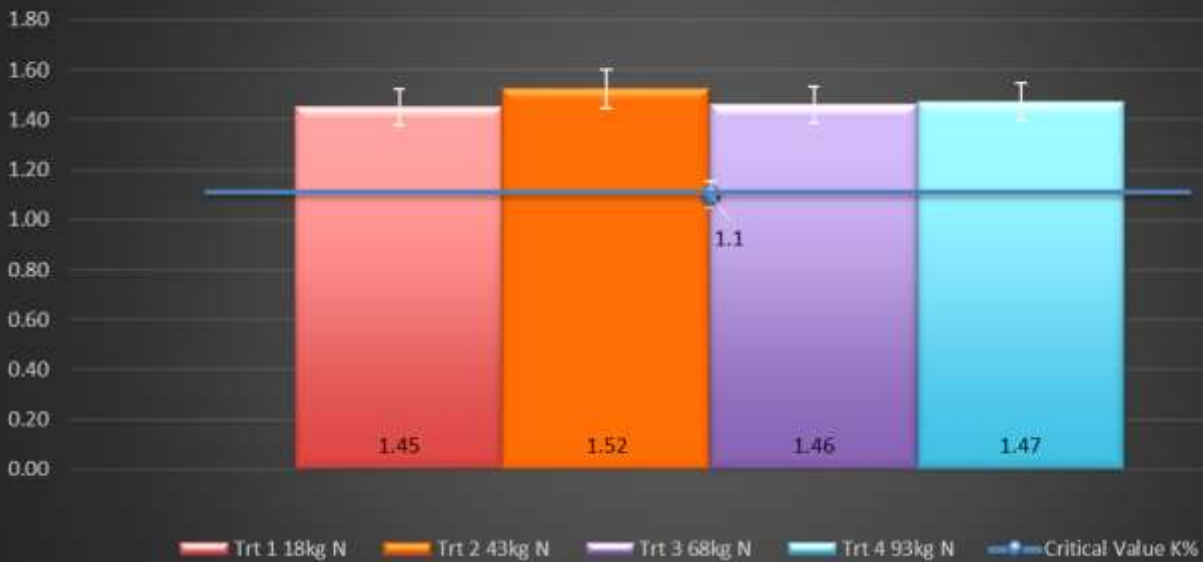
3rd leaf results N% April 2018



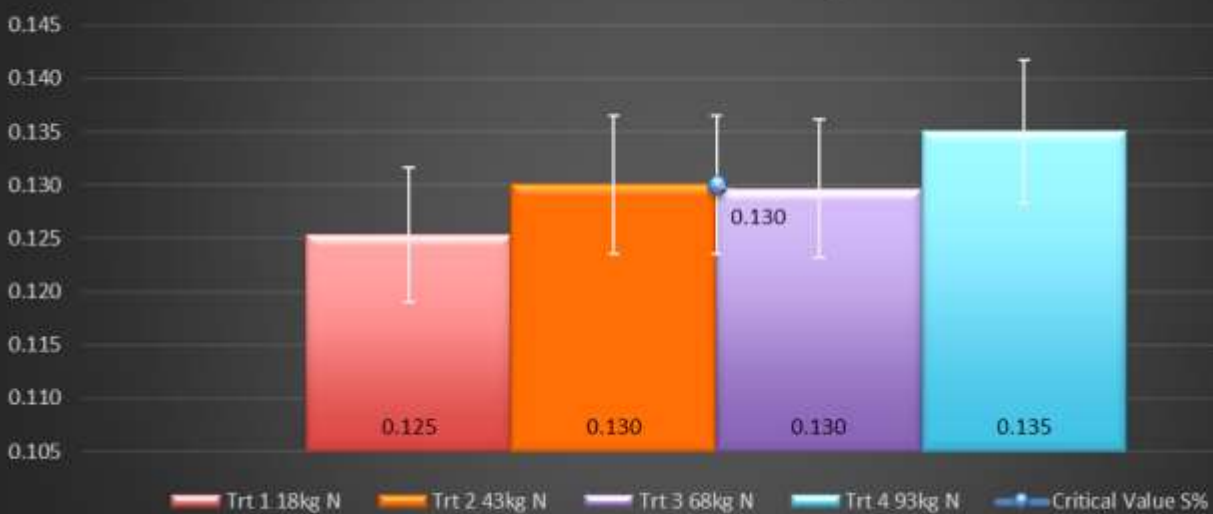
3rd leaf results for P% April 2018

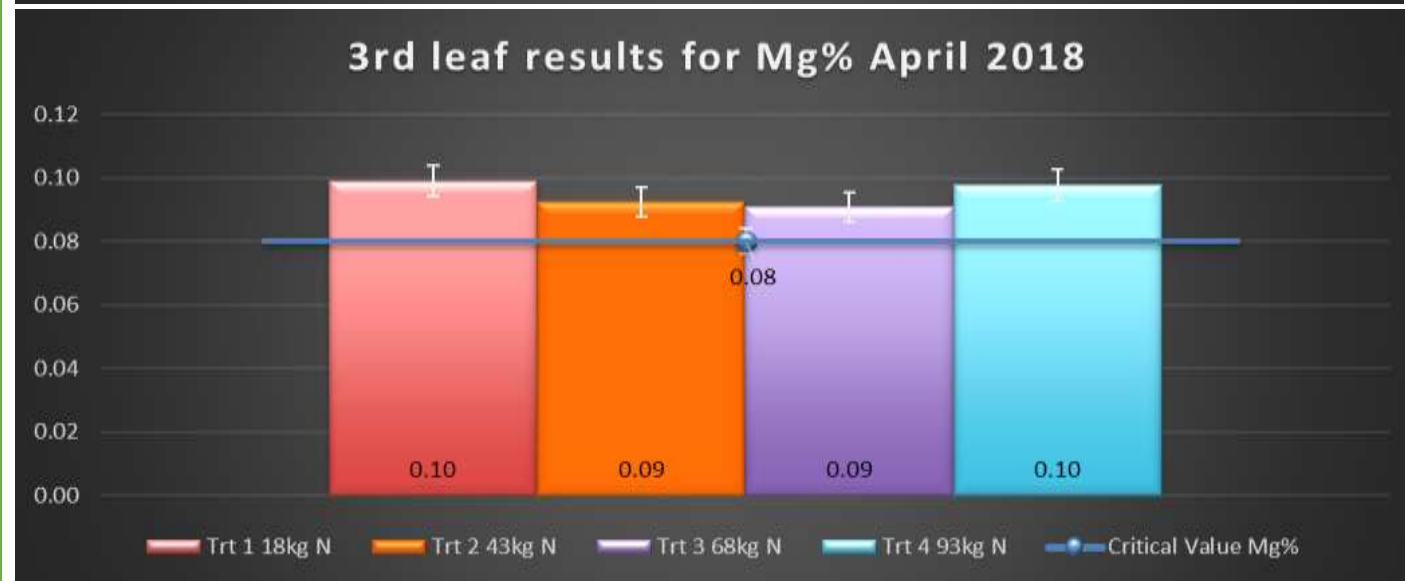
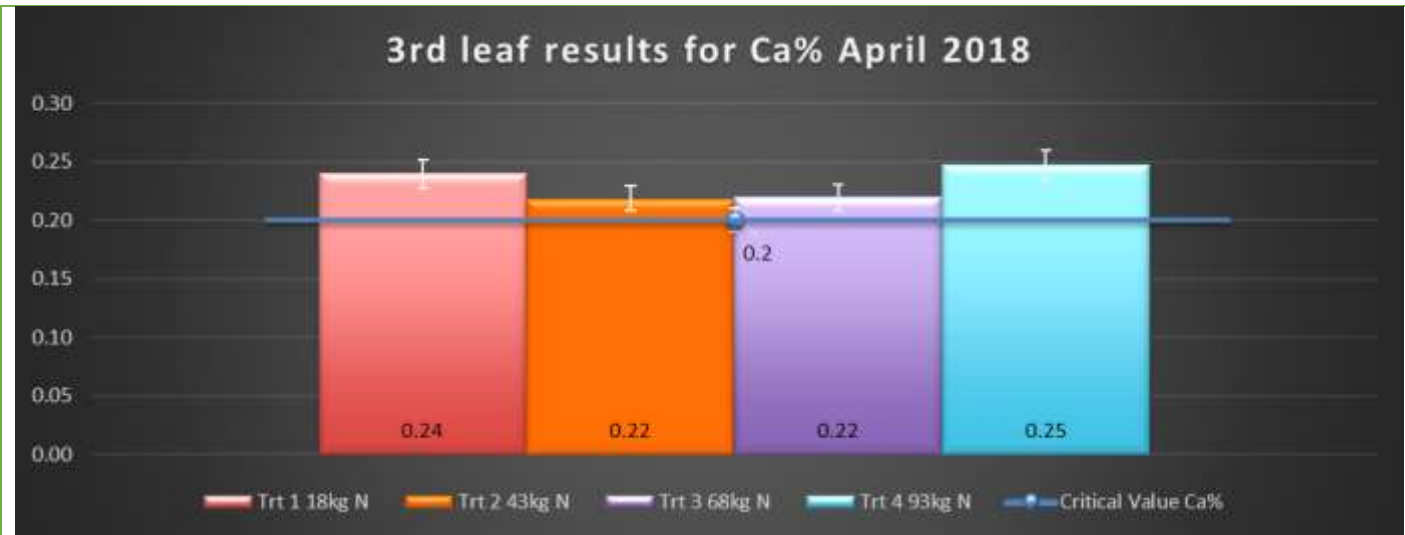


3rd leaf results for K% April 2018

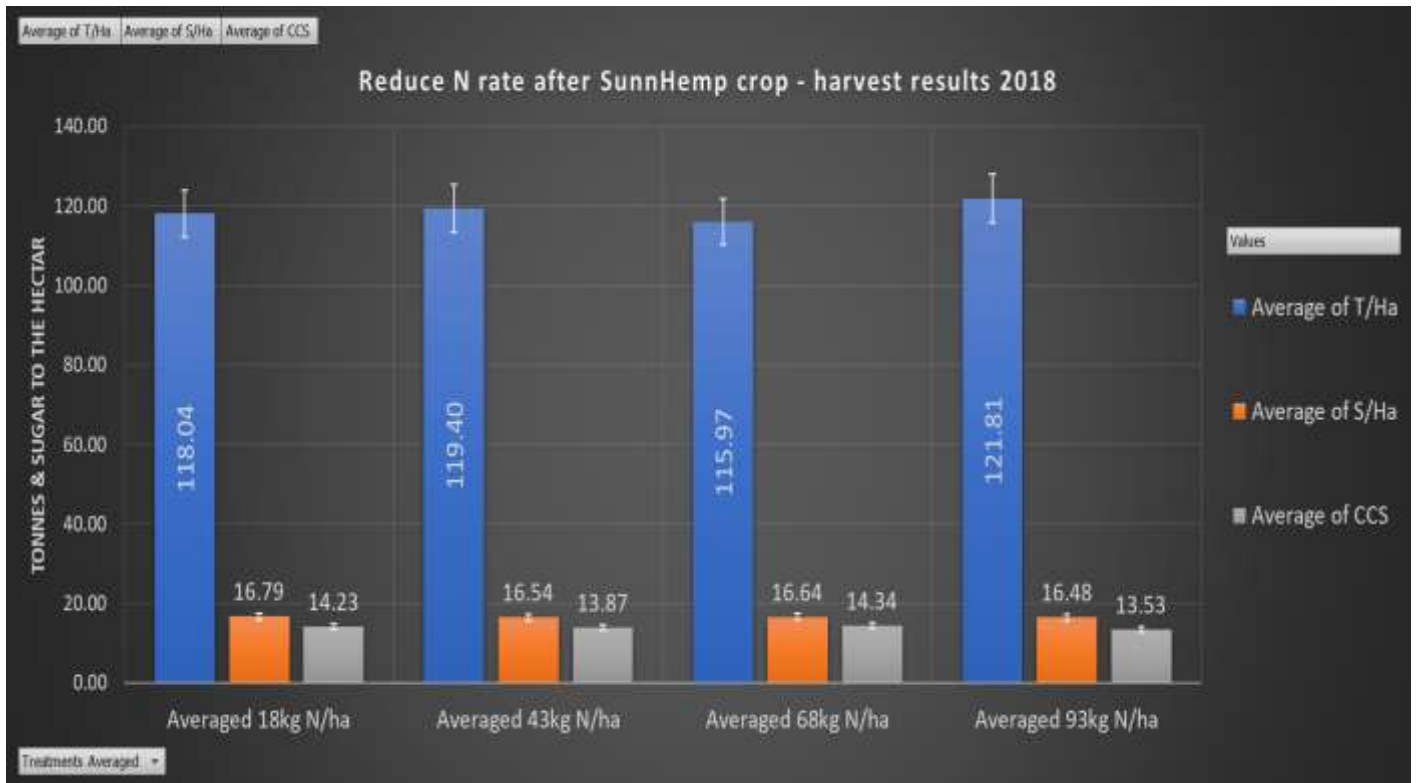


3rd leaf results for S% April 2018

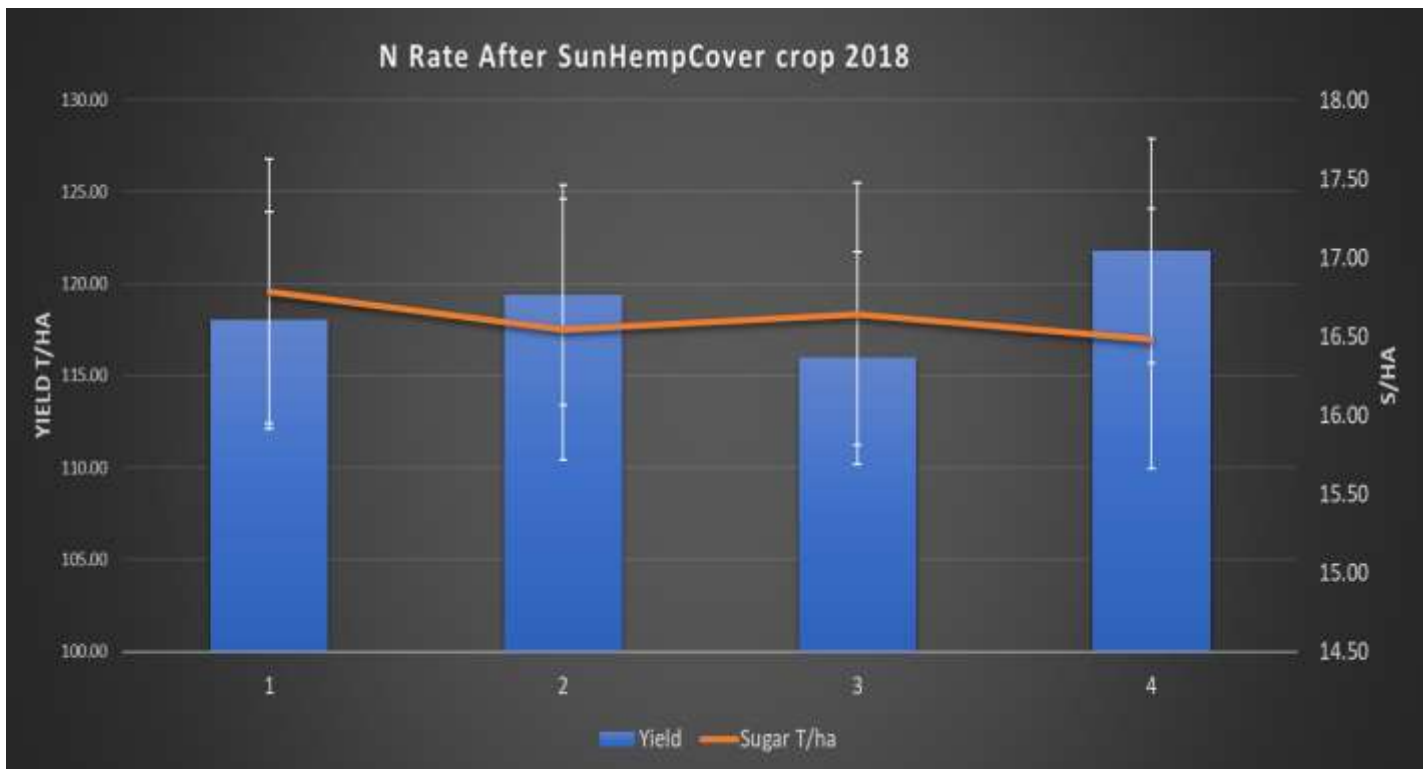




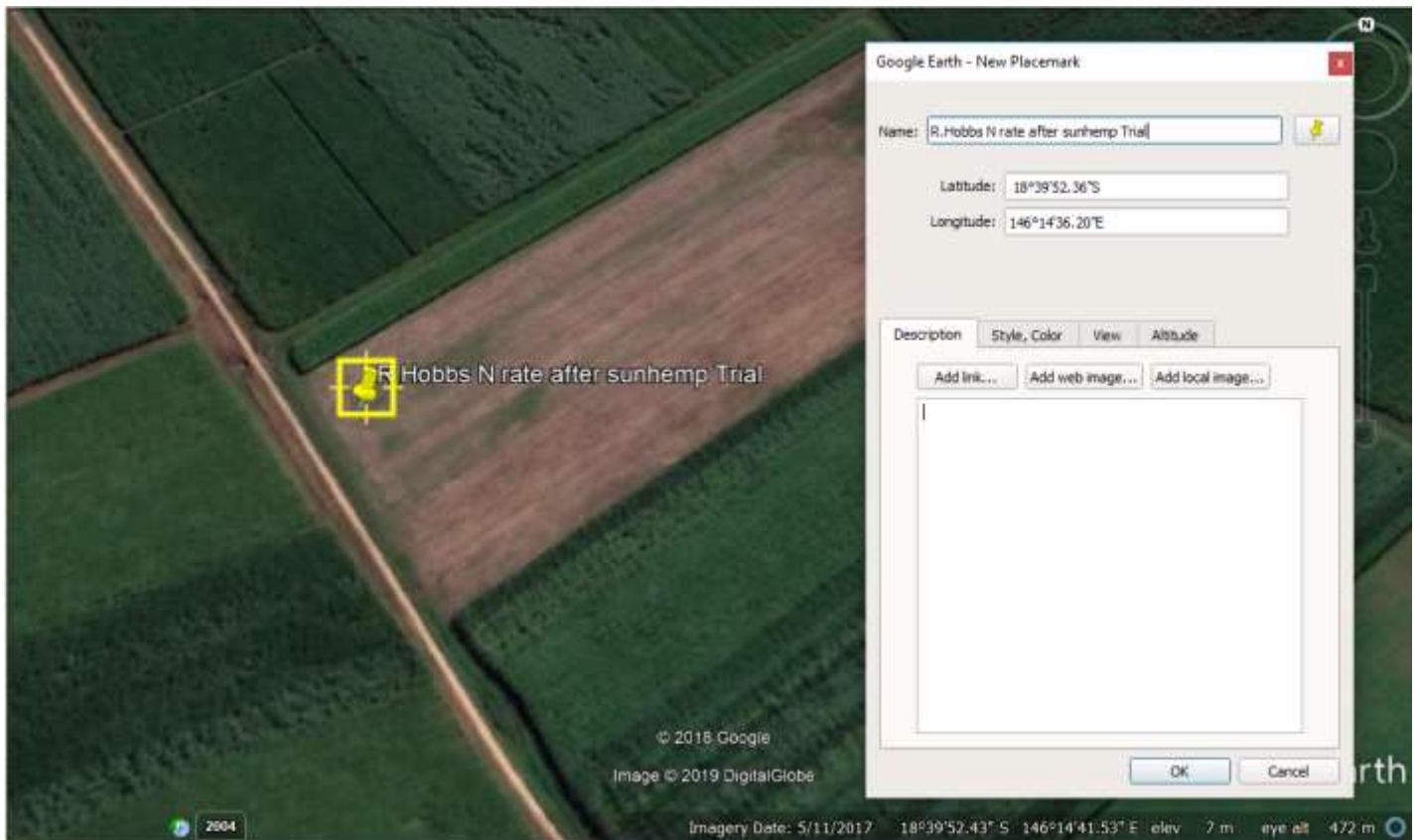
Harvest results 2018



Harvest Results 2018



Google Earth Reference Map



Conclusions and comments

It was a good results for the trial, as there was no statistical difference between treatments. The trial showed that farmers can confidently reduce their nitrogen rate after growing a good sunhemp fallow crop. The reduced rates of nitrogen will also benefit water quality runoff and the practice is economically sound as well.

Advantages of this Practice Change:

Soil health advantages, nutrient uptake advantages. Opportunity to reduce chemical fertiliser and save dollars

Disadvantages of this Practice Change:

Sun hemp can be hard to purchase in Australia in some years due to importing and quarantine. This year 2017 is an example of that as all sun hemp that was imported into Australia last year was condemned due to foreign weed seed.

Will you be using this practice in the future?

Yes

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

Most fallow block will be planted with a mixed legume crop that would include sun hemp as they come into cycle

