

Catalyst Project Report

Grower Information

Grower Name:	Darryl Thomsett
Entity Name:	Thomsett Bros
Trial Farm No/Name:	PCK-00782A
Mill Area:	Plane Creek
Total Farm Area ha:	629
No. Years Farming:	
Trial Subdistrict:	Koumala/Kalaka
Area under Cane ha:	550

Background Information

Aim:

To Evaluate the use of 6 Easy Steps N Rates on High Organic Carbon % Soils that are low in the landscape

Background: (Rationale for why this might work)

Many growers are apprehensive lowering their Nitrogen rates to the new levels of 6 Easy Steps. This project will be used as an Innovation site to compare the 6 Easy Steps Nitrogen rates to traditional grower standard Nitrogen rates, with the aim of increasing adoption levels.

For the 2017 to 2018 season a new replicated trial site was established with the objectives to:

1. Compare Regulated nitrogen rate to grower standard practice
2. Compare EEF to Non-EEF on soil with poor internal drainage

This trial was a progression from the original trial where the grower wanted to investigate other alternatives to improve nitrogen use in his enterprise.

Potential Water Quality Benefit:

Increased confidence in using 6ES rates, increasing broad scale reduction of fertiliser application.

Expected Outcome of Trial:

All treatments will yield the same

Service provider contact: Farmacist

Where did this idea come from: Farmacist/Grower

Plan - Project Activities	Date: (mth/year to be undertaken)	Activities :(breakdown of each activity for each stage)
Stage 1	October 2017	Harvest crop
Stage 2	November 2017	Apply fertiliser as per trial design
Stage 3	February 2018	Leaf samples
Stage 4	October 2018	Harvest production
Stage 5	November 2018	Reapply treatments
Stage 6	February 2019	Leaf samples
Stage 7	October 2019	Harvest production

Project Trial site details

Trial Crop:	Sugarcane
Variety:	Q240 P
Rat/Plt:	
Trial Block No/Name:	7-1
Trial Block Size Ha:	7.8
Trial Block Position (GPS):	149.290968, -21.6398
Soil Type:	Bell - black, self-mulching, cracking clay

Block History, Trial Design:

	Rep 1				Rep 2				Rep 3			
	T 1	T 3	T 2	T 4	T 4	T 2	T 1	T 3	T 3	T 1	T 4	T 2
Row Length	250	250	250	250	250	250	250	250	250	250	250	250
Area ha	0.231	0.277	0.185	0.139	0.139	0.185	0.185	0.139	0.139	0.185	0	0

Figure 1 - Trial layout of treatments and repetitions

Figure 1 shows the layout of the treatments applied to the paddock that were repeated three times. Table 1 shows the products, application rates and nutrients applied for all treatments.

Treatments:

Table 1 - Product, tares and nutrients applied

Treatment	Product	Rate	N (Kg/ha)	P (kg/ha)	K (kg/ha)	S (kg/ha)
T1	Hi K Ratooner	4.0m ³ /ha	111	19	105	27
T2	MKY190P	4.2m ³ /ha	160	15	108	26
T3	Entec Blend	567 kg/ha	110	19	105	27
T4	Entec Blend	667 kg/ha	160	15	108	26

Results:

Leaf samples were collected in March 2018 following the standard third leaf sampling protocol with results ranging from 1.5 to 1.6 % of nitrogen as shown in Table 2. The critical value for nitrogen content of crops at this age is 1.8%, indicating all of the treatments were below the optimal levels of nitrogen.

Table 2 - Leaf sample results from March 2018

	Dunder N @ 110 kg/ha	Dunder N @ 160 kg/ha	Entec N @ 110 kg/ha	Entec N @ 160 kg/ha
Mean N%	1.63	1.5	1.6	1.55

Cane yields at harvest showed no differences across the treatments with yields ranging from 71 to 75 t/ha (Figure 2). Sugar yields showed similar trends ranging from 13.2 to 13.7 t/ha (Figure 3).

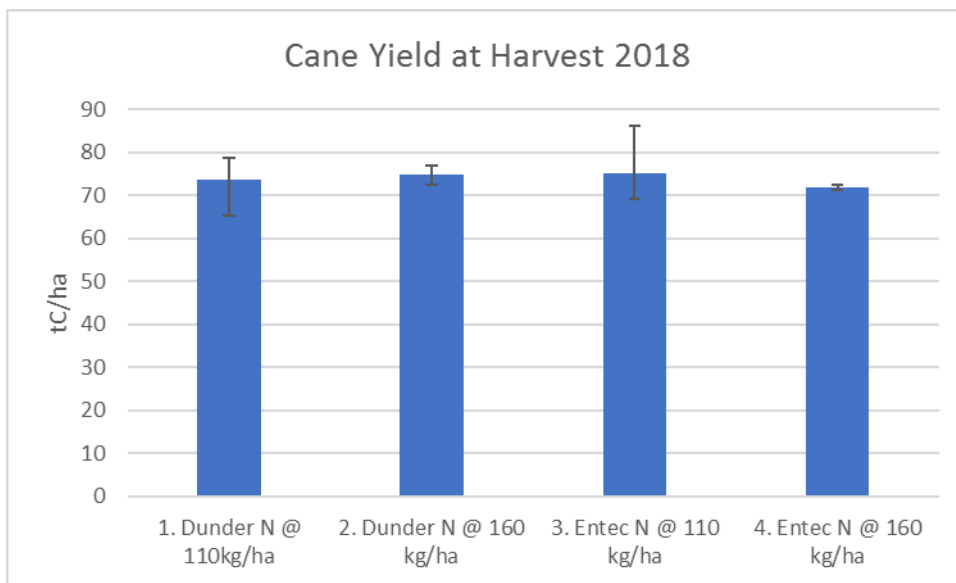


Figure 2 - Cane yield at harvest in 2018

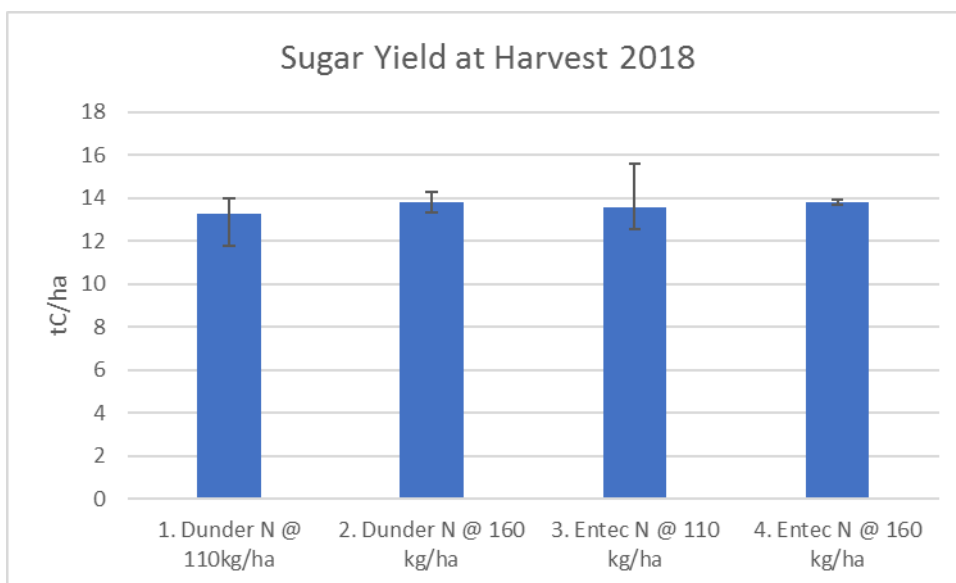


Figure 3 - Sugar yield at harvest in 2018

Leaf Samples 2019

Leaf samples were collected in March 2019 following the standard third leaf sampling protocol with results similar to 2018, ranging from 1.5 to 1.6 % of nitrogen as shown in Table 3. The critical value for nitrogen content of crops at this age is 1.8%, indicating all of the treatments were below the optimal levels of nitrogen. The higher nitrogen rates did have slightly higher nitrogen contents, however this difference was minimal.

Table 3 Leaf sample results March 2019

	Dunder N @ 110kg/ha	Dunder N @ 160 kg/ha	Entec N @ 110 kg/ha	Entec N @ 160 kg/ha
Nitrogen % Dumas	1.57	1.63	1.52	1.61

This year full analysis of other nutrients was also completed with the results shown in Figure 4 below. Most nutrients are above or close to critical values, except for nitrogen, as mentioned above. Differences between treatments were minimal with the different rates indicating no clear trends of higher or lower nutrient content.

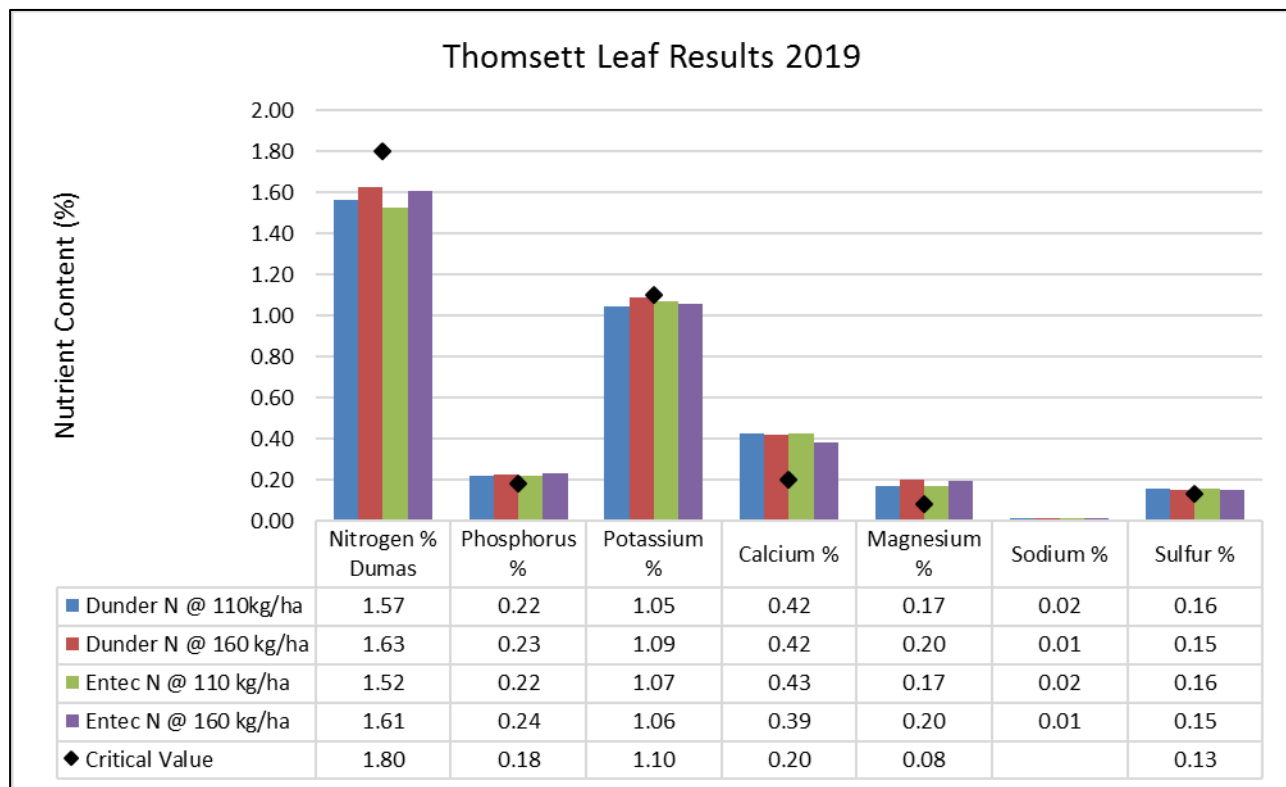


Figure 4 Leaf results March 2019

Conclusions and comments

The minimal difference in yield indicates that for this season, 6ES nitrogen rates provided an adequate amount of nitrogen to the crop. In a year of higher rainfall this may not be the case as this season was a dry season where there were minimal nitrogen loss events.

Advantages of this Practice Change:

Decreased amount of nitrogen applied.

Disadvantages of this Practice Change:

Higher risk of nitrogen depletion depending on seasonal conditions.

Will you be using this practice in the future:

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

Project site is continuing 2019