Catalyst Project Report

Grower Information	
Grower Name:	Daniel Pantovic
Entity Name:	MD & Pantovic
Trial Farm No/Name:	F4044, F1425, F1580
Mill Area:	Tully Sugar Mill
Total Farm Area ha:	282.72
No. Years Farming:	30 +
Trial Subdistrict:	El Arish (F1425 & F1580) & Bilyana (F4044)
Area under Cane ha:	282.72 Ha (including fallows)

Background Information

Aim: Evaluate Entec Fertilizer to reduce Nitrogen losses

Background: (Rationale for why this might work)
Entec is an enhanced efficiency fertilizer, that is reported to reduce nitrogen losses under certain circumstances by slowing the conversion of ammonium to nitrate in the soil.

Due to the nature of sugarcane, a full crops nutrient requirements are applied as a single application early in the life of the crop. The idea behind the use of Entec, is to hopefully, ensure that more of the nitrogen is taken up by the crop instead of eing lost to the general environment.

Potential Water Quality Benefit:
Improved nitrogen use efficiency, and less leaching of nitrogen below the crops root zone and into the environment.

Expected Outcome of Trial:
If NUE is improved, a lower rate of nitrogen with the addition of Entec should produce equivalent yields compared to the full rate of nitrogen without Entec.

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

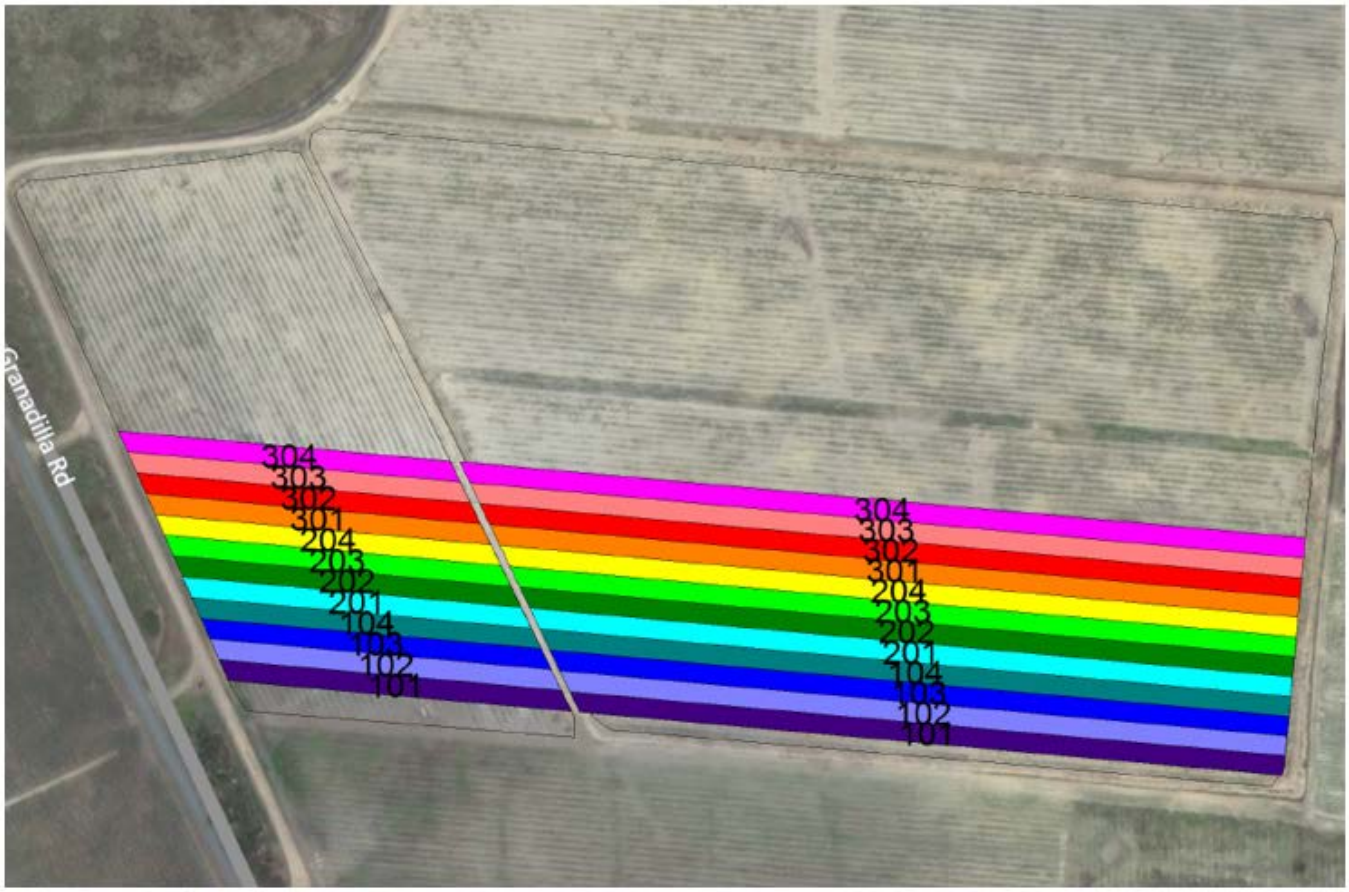
Where did this idea come from:
Advertising material within the cane industry sprooking the benefits of Entec and other EEF products.

Plan - Project Activities	Date : (mth/year to be undertaken)	Activities :(breakdown of each activity for each stage)
Stage 1	Sep 2015 – Dec 2015	Identify a suitable field, develop treatment list and trial design, mark out trial in field and apply the fertilizer.
Stage 2	Jan 2016 – May 2016	Leaf tissue samples.
Stage 3	Oct 2016– Dec 2016	Harvest trial plots. Analyse data and report results. Re-apply fertilizer Treatments
Stage 4	Oct 2017– Dec 2017	Harvest trial plots. Analyse data and report results. Fallowed

Project Trial site details

Trial Crop:	Sugarcane
Variety: **Rat/Plt:**	Q208
Trial Block No/Name:	F1425 Blk 39
Trial Block Size Ha:	16.43 Ha
Trial Block Position (GPS):	17.8273°S 146.0172°E
Soil Type:	Thorpe Series (predominantly) with some Tully Series

Block History, Trial Design:



Trt 1	Plot # 101, 202, 302
Trt 2	Plot # 103, 203, 301
Trt 3	Plot # 102, 204, 304
Trt 4	Plot # 104, 201, 303

4 x Treatments x 3 Replication s – RCB Design

Treatments:

Trt 1 – CK140S @ 600 kg/ha (139:121:105:22.5)
Trt 2 – CK140S (Entec) @ 600 kg/ha (139:121:105:22.5)
Trt 3 – CB92090 @ 540 kg/ha (110:12:105:22.5)
Trt 4 – CB61483 (Entec) @ 540 kg/ha (110:12:105:22.5)

Results:

2016 Harvest (15/11/2016)

Treatment		Cane Yield (t/ha)		CCS		Sugar Yield (t/ha	
1	CK140S @ 600 kg/ha	74.84	-	10.91	-	8.16	-
2	CK 140S (Entec @ 600 kg/ha	75.36	-	10.95	-	8.25	-
3	CB92090 @ 540 kg/ha	75.08	-	11.27	-	8.44	-
4	CB61483 (Entec) @ 540 kg/ha	75.91	-	10.78	-	8.18	-
p-value (p=0.05)		0.8623		0.5262		0.5018	
LSD (p = 0.05)		N/A		N/A		N/A	

Tissue Analysis (16/05/2016)

Treatment		Total N (%)		Ammonium N (%)	
1	CK140S @ 600 kg/ha	2.07	-	96.0	-
2	CK 140S (Entec @ 600 kg/ha	2.13	-	82.7	-
3	CB92090 @ 540 kg/ha	2.10	-	86.0	-
4	CB61483 (Entec) @ 540 kg/ha	2.07	-	84.7	-
p-value (p=0.05)		0.8951		0.3521	
LSD (p = 0.05)		N/A		N/A	

2017 Harvest (09/11/2016)

Treatment		Cane Yield (t/ha)		CCS		Sugar Yield (t/ha	
1	CK140S @ 600 kg/ha	69.37	-	11.25	-	7.80	-
2	CK 140S (Entec @ 600 kg/ha	70.62	-	11.32	-	7.99	-
3	CB92090 @ 540 kg/ha	69.34	-	11.35	-	7.87	-
4	CB61483 (Entec) @ 540 kg/ha	69.08	-	11.06	-	7.64	-
p-value (p=0.05)		0.8999		0.4666		0.7371	
LSD (p = 0.05)		N/A		N/A		N/A	

Conclusions and comments

There is no significant difference between any of the treatments. This means that a 20% reduction in N had an equivalent yield to the treatments with the full N Rate. There was no benefit in using Entec in this trial.

Advantages of this Practice Change:

The results from this trial indicate that there is no advantage. The crop harvested in 2015 had no major denitrification events, however the crop harvested in 2016 was fertilized in early January just prior to a major weather event. The late harvest of this trial in both years was intentional to try and expose the treatmnts to a major weather event. However, even with the major weather event in January 2017, there was still no difference between treatments. This could be potentially due to the low yields recorded in this field for both harvest years.

The tissue test conducted at 6 months post harvest in May 2016 also showed that there was no difference in the uptake of nitrogen in the plant for any of the treatments.

Disadvantages of this Practice Change:

Benefits appear to be limited from this trial and others, so may be using a product with potentially no ROI.

Will you be using this practice in the future:

With the current trial results and other local results, it seems there would be no benefit in using Entec even in the late cut when a major weather event is imminent.

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

Need to see more results in typically wet weather years to further evaluate the merits of using Entec.