



# **Soil Additive Trial**

## **Mackays Warrami**

### **Aims**

- 1. To determine if the rate of Nitrogen and Phosphorus can be altered when using a soil additive products**
- 2. To compare standard fertiliser at Six Easy Steps rates to a new Fertiliser product ( Stoller)**

### **Background/Products**

TGS – Petrik

Stoller

HiBrix

## Process

1. Select blocks
2. Soil sample
3. Apply product at planting ( 01/09/2015)
4. Stalk Counts fortnightly
5. Harvest 2016
6. Calculations
7. Trial set to last 3 years
8. Three years with triple replicate sites as a minimum



## Trial design

Rep 1	E	D	H	F	A	B	C	G
Rep 2	C	E	H	F	G	A	B	D
Rep 3	H	B	E	F	G	D	C	A
A	Control + standard planting fertiliser mix only							
B	Clear Start (50/L ha) + Action 5 (0.5 L/ha) + normal planting fertiliser							
C	Clear Start (50/L ha) + Bioforge (1.2 L/ha)							
D	HiBrix (2.5 L/ha) + (normal planting fertiliser)							
E	HiBrix (1.9 L/ha) + (0.75 planting fertiliser)							
F	HiBrix (1.25 L/ha)+ (0.5 planting fertiliser)							
G	Petrik + (normal planting fertiliser)							
H	Petrik + (normal planting fertiliser) to be reduced at topdressing to achieve 0.66 of treatment G)							

Where normal fertiliser is 600kg/ha 141S

N – 144

P-12

K-112

S-25

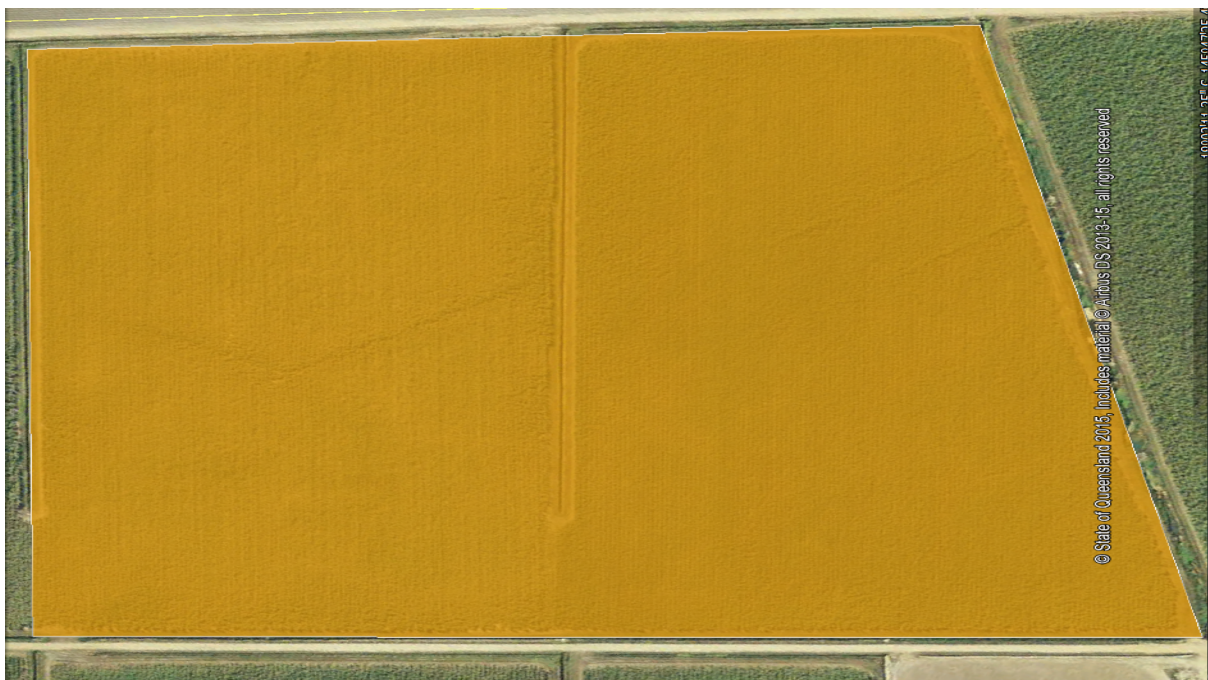
Therefore reduced rates eg Petrik at 0.66 will give is

N -95

P -8

K-74

S-17





## Stalk Counts per 10 m

**8/10/2015**

Replicate	Stalk Counts	Av	Replicate	Av	Total Av
	Yellow		Blue		
A	66+72+120	86	81+100+88	90	88
B	100+126+102	109	101+135+110	115	112
C	97+115+156	123	92+139+134	122	123
D	64+73+95	77	79+70+106	85	81
E	94+102+100	99	78+112+84	91	95
F	79+98+59	79	88+93+95	92	86
G	117+125+135	126	82+103+138	108	117
H	82+92+82	85	79+116+82	92	89

**21/10/2015**

Replicate	Stalk Counts	Av	Replicate	Av	Total Av
	Yellow		Blue		
A	80+91+64	78	90+83+77	83	81
B	120+93+116	110	128+78+130	112	111
C	113+107+107	109	125+98+79	101	105
D	71+93+75	80	73+68+98	79	80
E	84+121+106	103	93+84+93	90	97
F	100+75+63	79	123+87+84	98	89
G	122+114+84	107	92+93+84	89	98
H	113+94+87	98	75+96+115	95	97

## Mobile Mill Sampling 12/08/2016

Site	Bottom	Tot	Top	Tot	Diff/3	CCS - 2
A	23.8+24.5+24.7	73	22.9+23.3+23.4	69.6	1.13	16.15-2
B	23.4+22.9+23.2	69.5	23.1+22.0+21.2	66.3	1.06	15.46-2
D	22.4+21.9+22.0	66.3	21.7+20.8+20.5	63.0	1.1	14.67-2
G	20.6+22.6+22.1	65.3	20.0+19.8+20.4	60.2	1.7	14.15-2

From sampling 12 August 2016

A (Stand) Possible CCS = 14.15

B (Stoller) Possible CCS = 13.46

D (HiBrix) Possible CCS = 12.67

G (Petrik) Possible CCS = 12.15

## Harvest results Rep 1

Replicate	t/ha	CCS	Ts/ha
A	114	14.0	15.96
B	102	12.4	12.65
C	131	12.4	16.24
D	116.5	13.53	15.76
E	118	13.35	15.75
F	116	13.5	15.66
G	103	12.3	12.67
H	116	13.4	15.54

## Rep 2

Replicate	t/ha	CCS	Ts/ha
A	111	13.3	14.76
B	112	13.9	15.57
C	114	14.2	16.19
D	112	14.0	15.68
E	111	14.6	16.21
F	111	14.35	15.93
G	104	14.6	15.18
H	112	14.6	16.35

## Rep 3

Replicate	t/ha	CCS	Ts/ha
A			
B	112	15.3	17.14
C	110	15.8	17.38
D	101	15.0	15.15
E	112	15.4	17.25
F	114	15.5	17.67
G	112	15.3	17.14
H	110	14.8	16.28



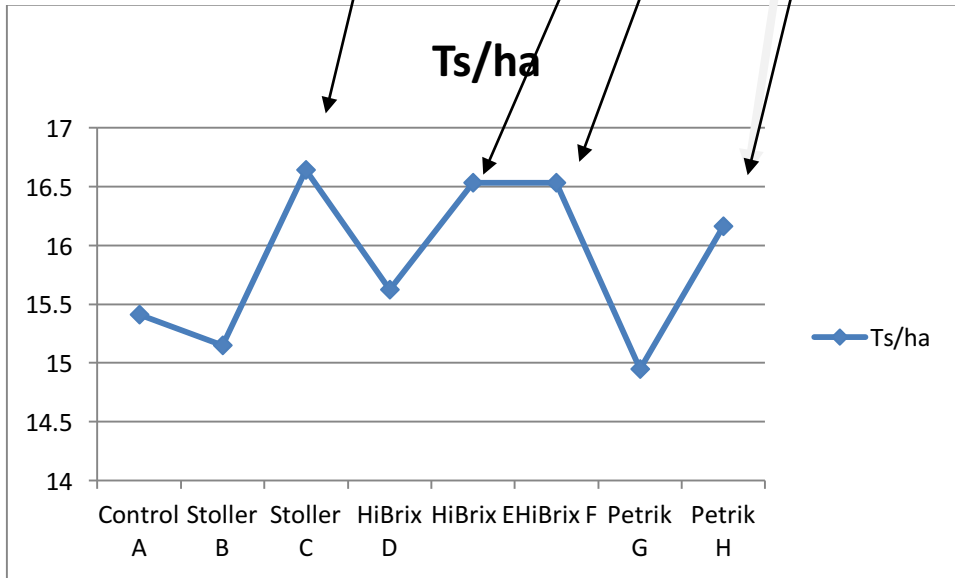
## Average Year 1 results ( 2016 harvest)

Replicate	t/ha	CCS	Ts/ha
Control A	112.5	13.7	15.41
Stoller B	109	13.9	15.15
Stoller C	118	14.1	16.64
HiBrix D	110	14.2	15.62
HiBrix E	114	14.5	16.53
HiBrix F	114	14.5	16.53
Petrik G	106	14.1	14.95
Petrik H	113	14.3	16.16

Rep 1	E	D	H	F	A	B	C	G
Rep 2	C	E	H	F	G	A	B	D
Rep 3	H	B	E	F	G	D	C	A
A	Control + standard planting fertiliser mix only							
B	Clear Start (50/L ha) + Action 5 (0.5 L/ha) + normal planting fertiliser							
C	Clear Start (50/L ha) + Bioforge (1.2 L/ha)							
D	HiBrix (2.5 L/ha) + (normal planting fertiliser)							
E	HiBrix (1.9 L/ha) + (0.75 planting fertiliser)							
F	HiBrix (1.25 L/ha)+ (0.5 planting fertiliser)							
G	Petrik + (normal planting fertiliser)							
H	Petrik + (normal planting fertiliser) to be reduced at topdressing to achieve 0.66 of treatment G)							

**Graph 1 Line Graphs t s, ha**

**Reduced Nitrogen- Phosphorous rates**



Rep 1	E	D	H	F	A	B	C	G
Rep 2	C	E	H	F	G	A	B	D
Rep 3	H	B	E	F	G	D	C	A

- A Control + standard planting fertiliser mix only
- B Clear Start (50/L ha) + Action 5 (0.5 L/ha) + normal planting fertiliser
- C Clear Start (50/L ha) + Bioforge (1.2 L/ha)
- D HiBrix (2.5 L/ha) + (normal planting fertiliser)
- E HiBrix (1.9 L/ha) + (0.75 planting fertiliser)
- F HiBrix (1.25 L/ha)+ (0.5 planting fertiliser)
- G Petrik + (normal planting fertiliser)
- H Petrik + (normal planting fertiliser) to be reduced at topdressing to achieve 0.66 of treatment G)

## 2017 Harvest

### Harvest results Rep 1

Replicate	t/ha	CCS	Ts/ha
A	76.9	16.40	12.61
B	79.6	16.42	13.07
C	73.5	16.30	11.98
D	89.4	16.06	14.36
E	85.9	16.06	13.90
F	79.6	16.39	13.07
G	85.8	16.53	14.18
H	82.3	16.41	13.51

### Harvest results Rep 2

Replicate	t/ha	CCS	Ts/ha
A	102.1	15.37	15.69
B	88.4	15.48	13.68
C	74.7	16.38	12.24
D	92.5	15.94	14.74
E	82.5	16.1	13.28
F	76.1	16.27	12.38
G	70.0	16.4	11.48
H	80.4	16.33	13.12

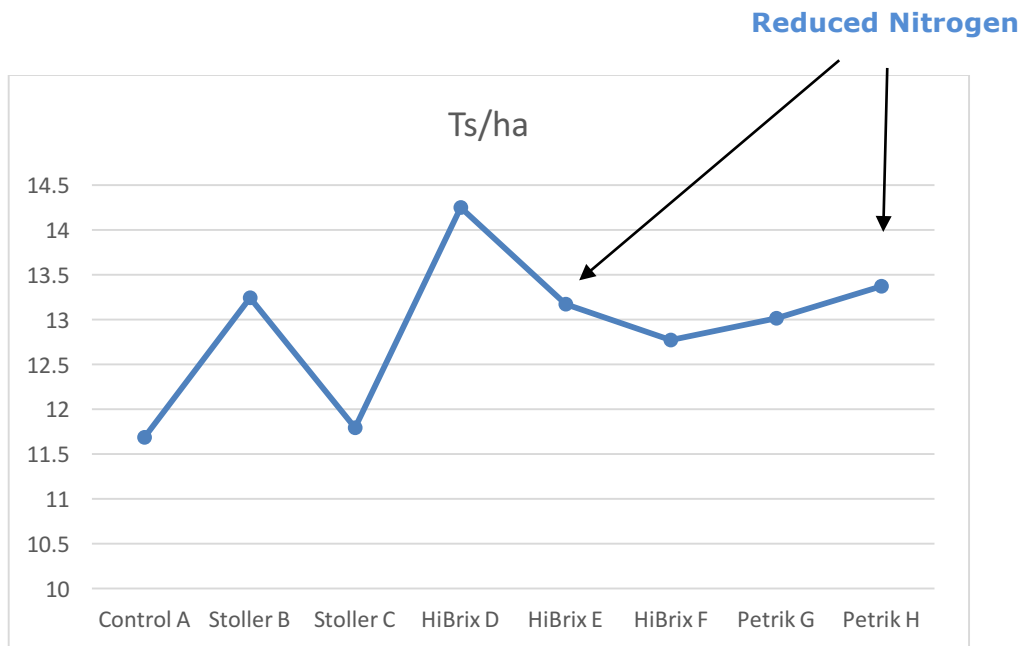
## Harvest results Rep 3

Replicate	t/ha	CCS	Ts/ha
A	54.0	16.62	8.97
B	82.1	15.94	13.09
C	69.1	16.19	11.19
D	83.4	16.36	13.64
E	76.3	16.28	12.42
F	78.8	16.32	12.86
G	82.5	16.37	13.5
H	87.9	16.09	14.14

## Average Yearn 2 results - 2017 harvest

Replicate	t/ha	CCS	Ts/ha
Control A	72.4	16.13	11.68
Stoller B	83.4	15.87	13.24
Stoller C	72.4	16.29	11.79
HiBrix D	88.4	16.12	14.25
HiBrix E	81.6	16.15	13.17
HiBrix F	78.2	16.33	12.77
Petrik G	79.4	16.43	13.01
Petrik H	81.7	16.37	13.37

Graph 2 Ts/ha for each Treatment 2017



## Conclusions

- Second year data is showing an overall drop in yield consistent with the rest of the block.
- Once the normal fertiliser rates are recorded, the level of success of the additives is variable.
- Trial needs to run 1 more years (2018).

**Greg Shannon**

**Cane Productivity and Development Manager**

Tully Sugar Limited

M 0400586968 | E [gshannon@tsl.com.au](mailto:gshannon@tsl.com.au)

PO Box 441 | Tully Qld 4854



**Marcus Bulstrode**

Extension Officer (Sustainable Farming Systems)

Agri-Science Queensland

Department of Agriculture and Fisheries (QDAF)

Centre for Wet Tropics Agriculture

24 Experimental Station Road

South Johnstone, Queensland 4859

**Post:** P.O. Box 20 South Johnstone

**Ph:** 07 4064 1150

**Mob:** 0475817738

**Email:** [Marcus.bulstrode@daff.qld.gov.au](mailto:Marcus.bulstrode@daff.qld.gov.au)

