

# NITROGEN STABILISER DEMONSTRATIONS

The aim of the demonstrations was to assist growers to assess the logistics and potential benefits of Nitrogen stabiliser products on their farm. Project staff worked with growers to assess both productivity and profitability relating to the use of these products.

## PRODUCTION FINDINGS

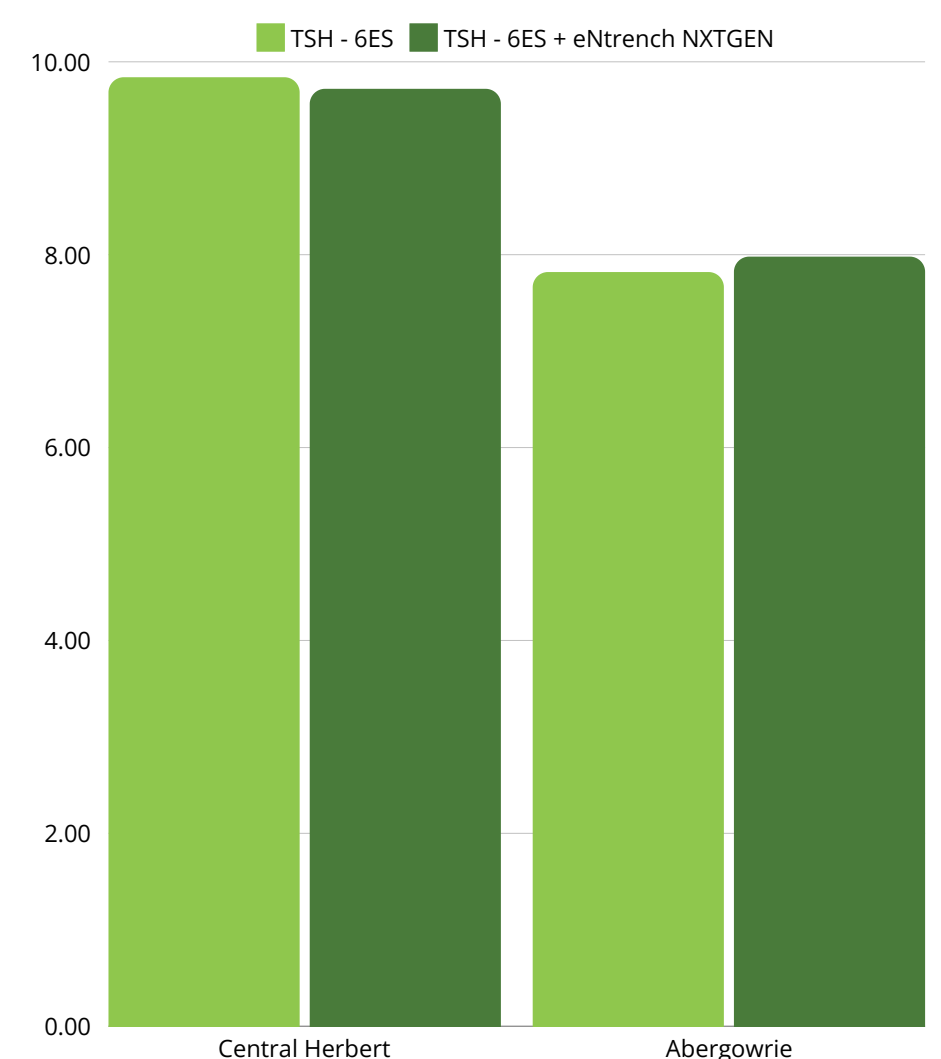


Harvesting of the demonstration sites was conducted by commercial harvesting contractors under the supervision of HCPSL Extension Agronomists. At each site, traditional fertiliser (control) and treated fertiliser (with eNtrench NXTGEN) were applied at the same rate, in line with the SIX EASY STEPS (6ES) guidelines. Production data (CCS and tonnes of cane) was provided by Wilmar Sugar Mills.

Unseasonably wet weather made harvesting a challenge, hence harvesting was delayed. Despite the application of a baiting program, the Abergowrie site was substantially damaged by rats. Harvesting of the site was still conducted however results should be treated with caution.

Production results were similar between treatments at each site, however there were no consistent trends associated with using eNtrench NXTGEN. (Refer to Table 1 & Figure 1). Due to the demonstrative nature of the sites, results cannot be quantified statistically. Therefore, it is uncertain whether the production differences were caused by the application of eNtrench NXTGEN or other factors.

Figure 1: Yield (Tonnes of Sugar/ha)



Sub-District	Treatment	Tonnes Cane/ha	Commercial Cane Sugar (CCS) <sup>^</sup>	Tonnes Sugar/ha
Central Herbert	GF 554 @ 6ES	83.53	11.78	9.84
	GF 554 @ 6ES + eNtrench NXTGEN	81.48	11.93	9.72
Abergowrie	GF 502 @ 6ES	73.90	10.59	7.82
	GF 502 @ 6ES + eNtrench NXTGEN	76.63	10.42	7.98

**Table 1:** Demonstration sites harvest data  
<sup>^</sup>Weighted averages of actual CCS



## ECONOMIC FINDINGS

Economists from the Queensland Department of Agriculture and Fisheries (DAF) evaluated the demonstration site data and calculated net revenues for each treatment. A statistical analysis was not able to be completed due to the nature of the demonstration sites (e.g. limited replicates). Therefore, the required yield increase to cover cost of using eNtrench NXTGEN was also investigated.

$$\text{NET REVENUE} = \text{GROSS REVENUE} - [\text{FERTILISER \& APPLICATION COST} + \text{HARVESTING COSTS} + \text{LEVIES}]$$

Key Parameters		eNtrench NXTGEN Change from Control		Breakeven	
Harvesting and Haulout Cost	\$9.92/t ^1	<b>Sub-District</b>	Gross Revenue	Net Revenue	Required yield increase (%TCH) to cover cost of eNtrench NXTGEN ^4
Sugar Price	\$675.40 ^2	Central Herbert	-0.63%	-2.10%	+1.63%
eNtrench NXTGEN	\$46.50/ha/yr ^3	Abergowrie	1.02%	-2.77%	+2.01%

**Table 2** Key parameters used in the economic analysis

**Table 3** Change in average eNtrench NXTGEN treatment performance relative to control, and breakeven analysis

Table 3 shows the change in performance, relative to the control, for the eNtrench NXTGEN treatment plots. There were no consistent trends in gross revenue for the eNtrench NXTGEN treatments, with Central Herbert showing a reduction (-0.63%) and Abergowrie an increase (1.02%) relative to the control. Once various costs (including the cost of eNtrench NXTGEN) were accounted for, there were decreases in Net Revenue at both sites (**-2.10%** and **-2.77%**) relative to the control.

Table 3 shows the findings of a breakeven analysis, using the average control CCS from each site (11.98 at Central Herbert and 10.59 at Abergowrie). This analysis shows that to cover the cost of using eNtrench NXTGEN, cane yield would have needed to increase by 1.63% for Central Herbert and 2.01% for Abergowrie.

## CONCLUSIONS

- The demonstration sites were established to assist growers to assess the logistics and potential benefits of Nitrogen stabiliser products on their farm.
- At each site, both fertiliser treatments were applied at the same rate, in line with the SIX EASY STEPS (6ES) guidelines.
- It is important to note that statistical analysis could not be completed on production and economic results due to the nature of demonstration sites (e.g. limited replicates).
- Production results were similar between treatments at each site and there were no consistent trends associated with using eNtrench NXTGEN.
- Economic analyses showed there were reductions in net revenue, largely due to the additional cost of using eNtrench NXTGEN.
- Due to the uncertainty in the production data and the site issues experienced (wet weather and rat damage), a breakeven analysis was completed to explore the cane yield increase required to cover the cost of using eNtrench NXTGEN.

Each farming business is unique in its circumstances and therefore the parameters and assumptions used in this research only reflect the situations of each demonstration. Consideration of individual circumstances must be made before applying the findings of this research to another situation. It is noted by HCPSL that growers should trial N-stabiliser products on different soil types, varieties and rainfall patterns before making a final decision on whether to adopt this practice.

[^1] Harvest price is inclusive of fuel, after rebate. Price based on regional advice and historical data.

[^2] Sugar price is the 2022-2024 average net \$/tonne IPS price.

[^3] Entrench NXTGEN pricing was calculated using a rate of 1.7L/ha for each application, each year and based on a multi-year average.

[^4] Change in tonnes of cane, assuming a constant CCS (control average for each site)



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