

Case Study 6

Neil and Michelle Walpole

Evaluating Variable Rate Fertiliser Application

Neil and Michelle Walpole grow sugarcane on 180ha in the Koumala district of the Plane Creek Mill Area. Their farms are located in the lower end of the Rocky Dam Catchment and have a mix of soils from choice black earths and creek loams to sodic duplex country.



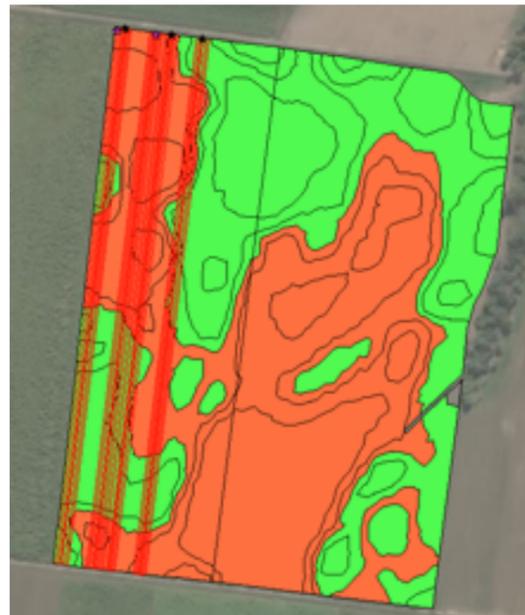
Neil Walpole – happy with the early results of his VR fertiliser trials.

The sodic soils occur on the leased farm, which is has no irrigation. Neil has been utilising variable rate application technology for about 3 years. Initially, Neil applied variable rate lime on his fallow blocks, using EC Mapping and targeted soil sampling to guide the applications. It was a natural progression for Neil to move to variable rate application of fertilisers, initially targeting blocks where high sodium levels severely impacted yield.

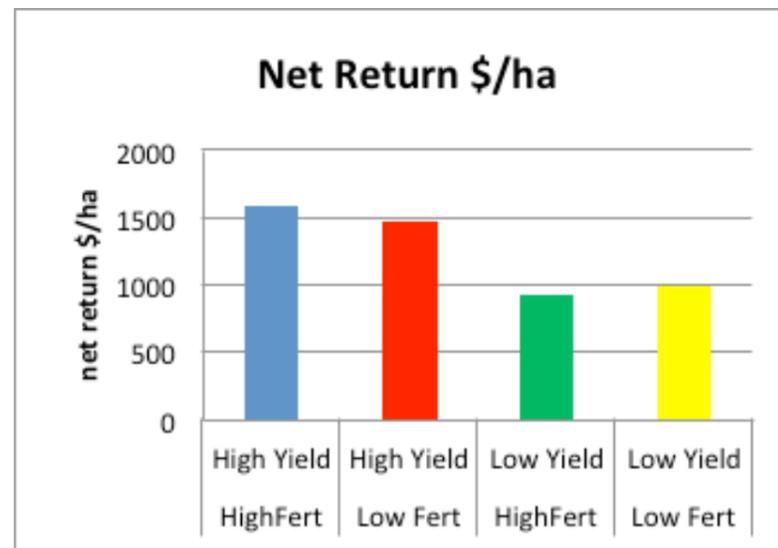
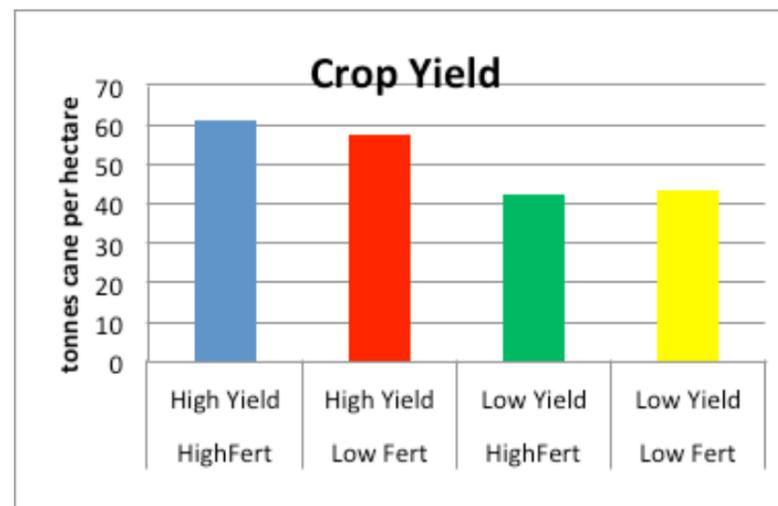
Neil has established a new trial to evaluate the performance and economics of variable rate fertiliser application on fields where the yield variability is more modest. The trial was established in a block of 1st ratoon KQ228. The plant cane yielded 115 t/ha. The block was EC Mapped in the fallow and soil tested by zone. There is limited yield mapping data available for the Plane Creek district – so the treatment map has been based on Neil's knowledge of the yield variability in the field and the EC map and soil testing results. The field was broken up into two zones – a high yielding zone where the soil has a lower clay content and has better drainage and a lower yielding zone where sodium levels are higher and drainage is restricted in wetter seasons.

Treatment applications were simply two fertiliser rates, high (160 kg N/ha) and low (150 kgN/ha), applied in strips along the field traversing the high and low yield zones. This effectively gives four treatments – High fertiliser rate on high yield zone, Low fertiliser rate on low yield zone, low fertiliser rate on high yield

zone and low fertiliser rate on low yield zone. The trial was harvested on 5th August 2013, with sections out of each treatment harvested into the Farmacist weigh bin. Yields were calculated from these weights and ccs for each treatment was just assigned from the mean ccs for the field.



Variable Rate Application Map – red areas low yield zone, green areas high yield zone. Red strips show the areas applied with high N treatment.



The results of the 2013 harvest were interesting. The highest yield was achieved in the High Yield High Fertiliser treatment, although it was not statistically significant to the lower fertiliser treatment. There was a distinct difference in yield between the high and low yield zones. Overall, crop yield was disappointing due to the exceptionally dry early summer period experienced.

The trial has been reapplied and we are looking forward to another harvest in 2014.

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