

# Increased sustainability and profit from improved application of precision technologies

## 2007 Variable Rate Trial Results

- ***Variable rate produced a yield increase of 0.25 t/ha or 10% compared to the flat rate.***

### Background

Trials testing the viability of variable rate technologies in cropping are yielding rewarding results. These trials are part of a DWLBC and NLP funded project to increase the awareness of precision technologies across the region. One trial at Coomandook showed an increase in yield of 0.25t/ha when using variable rate compared to a blanket application. This may not seem much, but targeting inputs using variable rate resulted in increased returns of more than 10%.

Management zones are determined from EM 38 sensing, soil sampling and moisture availability. Results from soil sampling are then used with local knowledge and the CSIRO Nitrogen calculator to determine nitrogen application rates. The zone map below shows the different zones created and the table details the differences between zones.

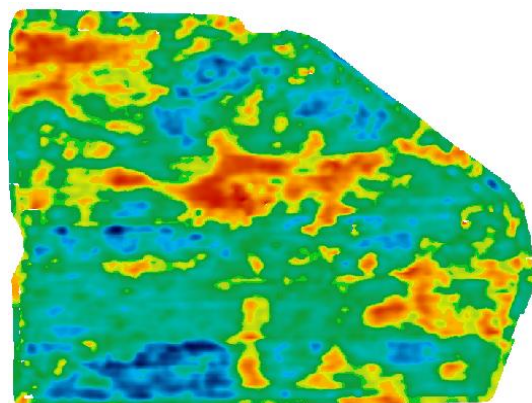
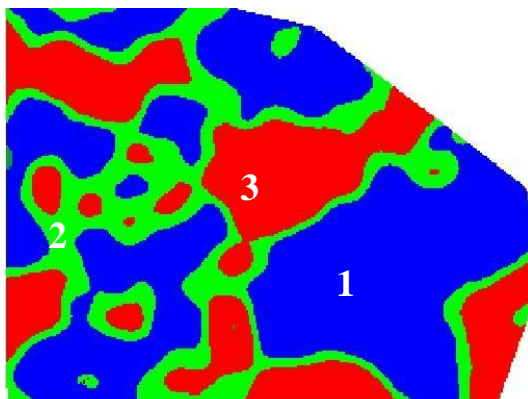
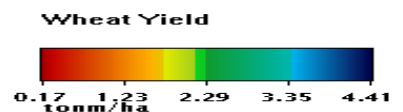
### Zone Characteristics

Zone		Area (ha)	Phos	OC%	N (kg/ha)
Sand	Blue (1)	63	30	0.72	62
Midslope	Green (2)	30	27	1.01	90
Flat	Red (3)	34	72	1.54	129

### Variable Rate Inputs

Zone	VR Fert
1	145
2	105
3	35

Flat rate 90kg /ha



## Results

Zone	Flat Rate	Var. Rate	Difference	Nett Benefit (\$/ha)
Rises (1)	2.43	2.89	.46	\$130.75*
Mid slope (2)	2.57	2.80	.23	\$72.25*
Flat (3)	2.51	2.60	.09	\$61.75*

**\*Note: calculations – Yield gain minus (or plus) nitrogen costs.**

**Prices: Wheat @ \$350/t – Urea @ \$550/t**

The results show that varying nitrogen rates between zones can increase yield. In this case the yield increase was an average of 0.25 t/ha or 10%. Also shown is the increase net return per hectare, in this particular case, the average increase for the paddock was \$88.25 /ha.

## Discussion

This is just one example of the many trials located across the Mallee & Upper South East. Not all have been as successful but many are showing the benefits of variable rate and precision technologies. Reduced fertiliser inputs or better use of fertiliser is a valuable tool particularly with the current fertiliser prices. If you wish to be involved in the described process, please contact either Craig Bell or Richard Saunders to locate your nearest precision agriculture trial and farmer group.