Micronutrient Field Evaluations - Longerenong 2012

This field experiment was conducted by Longerenong College students Erin Johnston, Elyse Burgess, Erin Harvey, Kate Cross and Katie Gallpen (as pictured from left to right at their trial in October)

The objective of this experiment, conducted at one site in 2012 was to assess the response of wheat to zinc and/or copper and/or boron micronutrient supplement mixtures in a standard cropping system.

The site selected was at Longerenong College on a vertosol soils. The paddock was part of a standard cropping rotation and was sown to canola in 2011 and wheat in 2012. Table 1 gives a soil test summary for the sites.

Table 1. Soil test result summary for the experimental sites in 2012.

Site	pH (1:5 water)	OC %	Colwell P mg/kg	PBI	Zinc (DTPA) mg/kg	Copper (DTPA) mg/kg
Longerenong	8.1	1.35	39	110	-	-
Critical level*					0.8	0.7

Critical levels taken from Peverill et al. 2005, Soil Analysis – An Interpretation Manual, CSIRO Publishing.

Scout wheat was sown at 80 kg seed/ha. The treatments were applied on 28 August, 2012 (DC32) with the applications of 160 g/ha of zinc (as zinc sulphate) and/or 67 g/ha of copper

(as copper sulfate) and/or 80 g/ha of boron (as boric acid) with a knapsack and hand-held boom spray.

Table 2 shows the mean yields for each treatment at the two sites, and indicates there were no significant differences due to the use of either micronutrient alone or in combination. The site CV was 9%.

Table 2: The effect of micronutrient application on wheat yield at two sites in the Wimmera in 2012.

Longerenong	t/ha	Grain Copper (mg/kg)	Grain Zinc (mg/kg)	Grain Boron (mg/kg)
Nil	3.21	3.6	17.7	1.2
Copper	3.75	3.7	19.0	1.2
Zinc	3.27	3.8	19.7	1.2
Boron	3.46	3.7	17.0	1.2
Copper+Zinc	3.09	3.6	17.3	1.1
Copper+Boron	3.98	3.6	17.0	1.0
Zinc+Boron	3.77	3.7	18.7	1.1
Copper+Zinc+Boron	3.46	3.6	18.7	1.0
	nsd	nsd	nsd	nsd

Grain from these experiments was submitted for elemental composition using ICP-OES through Waite Analytical Services (University of Adelaide). Table 2 shows the results of these analyses for copper, zinc and boron. There were no significant effects of any treatment on any of the grain nutrient contents.

Conclusion

The applied micronutrients had no effect on grain yield or nutrient concentration.