4. FERTILISER TRIALS

4.1 Zinc Efficiency Trial

Researchers
Andrew Speirs – Hifert

Aim
To compare the effectiveness of dry blend zinc, zinc cote fertilizers and soil applied zinc sulphate.

Title
To evaluate effectiveness of Zinc cote products and DAPS.

LOCATION: BALLARAT RD STREATHAM

Soil Type : Clay Loam				
Soil Test :	$pHCaCl_2$	4.4	NO_3	49
Extract :	P Olsen	21	NH_4	22
Depth: 0 – 10 cm	K Colwel	270	OC%	2.43
	S (KCL)	19	DTPA Zn	0.83
			Al $CaCl_2$	6.3 ppm

Site Details:
Annual Rainfall mm:
Growing season (A-O) rainfall mm: 1999

Paddock History		Yield	Stocking	Nutrients Applied				
Year	Crop/Pasture	T/ha	Rate DSE	N	P	K	S	Other
1996	Pasture		14		10		5	
1997	Pasture		14		10		5	
1998	Canola	3		60	30		20	

Notes (crops, grazing management, weeds, disease, trace element history etc.):
Clover dominant pasture, prior to canola. This year weed control not good on wild oats and rye grass.

Treatment Details:

			Nutrients Applied (Kg/ha)			
	Products		N	P	S	Zn
1	DAP'S	Urea Zncote	50	25	17	2.5
2	DAP Zncote	Urea	50	25	1.9	2.5
3	DAP dry Zn	Urea	50	25	2.5	2.5
4	DAP	Urea	50	25	2.5	0
5	DAP + TILL	Urea	50	25	2.5	0
6	DAP	Urea Zncote	50	25	2.5	2.5
7	DAP $ZnSO_4$	Urea	50	25	2.5	0

Plot Management Notes:
Sown: 24.5.99
Seed – Rate: 100 kg/hectare
Seed – Variety: Kellalic (Wheat)

SUMMARY OF RESULTS:

Product			Yield (tonnes/ha)	Protein %
1	DAP'S	Urea Zncote	3.48	13.29
2	DAP Zncote	Urea	3.24	13.48
3	DAP dry Zn	Urea	3.30	13.28
4	DAP	Urea	3.44	13.30
5	DAP + TILL	Urea	3.57	13.09
6	DAP	Urea Zncote	3.29	13.33
7	DAP $ZnSO_4$	Urea	3.52	13.04
CV			**8.80**	
LSD T/ha			**0.34**	

COMMENTS AND DISCUSSION:

- Tissue test data indicates the site is zinc responsive tissue levels showed higher zinc levels in the DAP zinc cote versus the other treatments, however this didn't result in extra yield.
- There was no statistical difference between treatments for yield

CONCLUSIONS:

- The application of zinc had no effect on yield or grain protein.
- zinc coated products are effective in supplying zinc.

ZINC EFFICIENCY TRIAL (CONT...)
LOCATION: BLACKWOOD RD PENSHURST

Soil Type : Clay Loam			Al $CaCl_2$	2.1 ppm
Soil Test :	$pHCaCl_2$	4.3	NO_3	67
Extract :	P Olsen	18	NH_4	10
Depth: 0 – 10 cm	K Colwel	167	OC%	2.4
	S (KCL)	9	DTPA Zn	0.9

Site Details:
Annual Rainfall mm: 550mm
Growing season (A-O) rainfall mm: 400mm

Paddock History		Yield	Stocking	Nutrients Applied				
Year	Crop/Pasture	T/ha	Rate DSE	N	P	K	S	Other
1996	Pasture		14		10		5	
1997	Pasture		14		10		5	
1998	Pasture	3						

Notes (crops, grazing management, weeds, disease, trace element history etc.):
Clover dominant pasture.

Treatment Details:

			Nutrients Applied (Kg/ha)			
Products			N	P	S	Zn
1	DAP'S	Urea Zncote	50	25	17	2.5
2	DAP Zncote	Urea	50	25	1.9	2.5
3	DAP dry Zn	Urea	50	25	2.5	2.5
4	DAP	Urea	50	25	2.5	0
5	DAP + TILL	Urea	50	25	2.5	0
6	DAP	Urea Zncote	50	25	2.5	2.5
7	DAP $ZnSO_4$	Urea	50	25	2.5	0

Plot Management Notes:
Sown: 1.6.99
Seed – Rate: 100 kg/hectare
Seed – Variety: Kellalic (Wheat)

SUMMARY OF RESULTS:

Product			Yield (tonnes/ha)	Protein %
1	DAP'S	Urea Zncote	3.77	14.05
2	DAP Zncote	Urea	3.78	14.05
3	DAP dry Zn	Urea	3.76	13.85
4	DAP	Urea	3.82	14.05
5	DAP + TILL	Urea	3.76	13.80
6	DAP	Urea Zncote	3.71	13.85
7	DAP $ZnSO_4$	Urea	3.93	13.90
CV			**3.60**	
LSD T/ha			**0.16**	

COMMENTS AND DISCUSSION:

- Although the site was not zinc responsive the plots treated with zinc coated product had the highest zinc level when tissue tested at 5 leaf stage.
- Given the fact that all plants were zinc sufficient, zinc had no effect on final yield,.
- There was no significant difference in yield or grain protein between treatments.

CONCLUSIONS:

- This trial demonstrated that zinc coted products are an effective way of applying zinc to a crop.
- The application of zinc had no effect on final yield.

FUTURE DIRECTIONS:

- This trial will continue in 2000.