Manganese in Lupins

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Purpose: To demonstrate responses to manganese (Mn) in lupins

Location: Badgingarra

Soil Type: Sandplain

Soil Results:

	Description	pH	Salt	OC	N(Nit)	N(Amm)	P	PBI	K	S
0 - 10	Grey loamy sand	5.3	0.04	1.5	12	2	11	10	48	3
20 - 30		5.4	0.03	1.4	10	1	5	2	29	3
40 - 50 cm		5.1	0.02	0.1	3	1	5	3	18	1

Rotation: 2009: wheat; 2008: barley; 2007: pasture.

GSR: 300 mm

BACKGROUND

Manganese deficiencies are often seen in lupins across the West Midlands. Deficiencies can result in split seed and yield losses.

TRIAL DESIGN

Plot size: 20m * 2.5m

Machinery: Conserva Pak seeder

Repetitions: 3

Crop details: Mandalup lupins at 100kg/ha on 19 May 2010

Treatments: **At seeding:** Big Phos/Big Phos Mn (0, 2.5, 5.0, and 7.5 kg/ha Mn)

Post-seeding (3/9/11): 1L/ ha StrataSol Mn

RESULTS

Trt	Treatment Banded (kg/ha)	Flowering (L/ha)	Mn	Stem Mn (ppm)	Harvest Yield (t/ha)	Seed Mn (mg/kg)
1	147 Big Phos	-	0	22	0.8	18
2	48 Big Phos Mn + 98 Big Phos	-	2.5	36	0.7	22
3	96 Big Phos Mn + 46 Big Phos	-	5	32	0.6	24
4	144 Big Phos Mn	-	7.5	53	0.9	24
5	147 Big Phos	1.0 SSol Mn	0.5		0.8	19
6	48 Big Phos Mn + 98 Big Phos	1.0 SSol Mn	3.5		0.8	20
			Prob	0.002	0.38	<0.001
			Lsd	12.1	ns	4.1

DISCUSSION

- There was no yield response to Mn fertiliser.
- Plant and seed testing confirmed that this site had no requirement for Mn fertiliser, but they did show increased Mn levels with increasing supply.
- Claying in 2008 probably reduced the likelihood of Mn deficiency by improving soil moisture relations and therefore Mn availability.

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