Trial Name: Effects of Lime and Incorporation on Species

Trial Number: 39MIG13
Researcher: Debbie Gillam, Sebastian Recabarren, Brooke Forsyth
Organization: Mingenew-Irwin Group

Why do the trial?

To investigate the benefits of incorporating lime through deep ripping following application on wheat and barley.

Crop management

Grower and Location: MIG Main Trial Site, Horwoods, Mingenew
Soil Type: Yellow Sand
Soil test results:

Depth	PH	EC	Organic Carbon	Ammonium CaCl	Nitrate Nitrogen	Phosphorus Colwell	Potasium Colwell	Sulphur	Aluminium (CaCl2)
(cm)	(H_2O)	(dS/m)	(%)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
0-10	6.2	0.042	0.58	<1	13	17	48	4.5	0.34
10-20	5.0	0.021	0.21	1	5	16	34	4.6	3.90

Total Annual Rainfall: 369.3
GSR (Apr-Oct): 283.3 mm
Paddock History:

2012	2011	2010	2009	2008
Lupins	Wheat	Lupins	Wheat	Lupins

Paddock Average Yield: 2.75 t/ha
Plot size: 2.0m x 20m (1.54 x 20m sown)
Seeding Date: 21st May
Seedding Rate: 90 kg/ha wheat & Barley
Seeding Machinery: DAFWA Small plot cone seeder, Knife points and press wheel
Plant Counts: 10th June
Vigor Ratings: 1st August

Paddock Inputs

Fertiliser
Pre: 80 kg/ha Agstar Extra
Post: 80 kg/ha NS61
Total Fertiliser Cost: $93.2/ha
Herbicide
Pre: 1.2L/ha SpraySeed + 2.0L/ha Simazine
Post: 1.0L Decision + 1.0% Hasten, 670 ml/ha Velocity + 1.0% Hasten

Key Messages

Price Notes:
All prices EPR delivered Geraldton, not including delivering and handling charges and GST exclusive. Refer to appendix.
Vigour: 1 = poor vigour, 10 = strong vigour

Table 1.

Treatment	Yield t/ha	Protein	ppm2	Vigour	Weight Kg/hl	Screenings %	Returns
Wyalkatchem wheat + 2.0t Lime, Deep Ripped	2.95 a	12.9 b	127	8	78.6 a	4.98 a	APW $909
Wyalkatchem wheat + 4.0t Lime, Deep Ripped	2.87 a	13.1 b	142	8	78.2 a	4.48 a	APW $885
Wyalkatchem wheat + 2.0t Lime	2.33 b	13.6 a	91	5	78.43 a	3.84 a	APW $718
Wyalkatchem wheat + 4.0t Lime	2.21 b	14.0 a	77	5	78.47 a	4.36 a	APW $681
Wyalkatchem Wheat	2.21 b	13.9 a	151	5	78.83 a	4.52 a	APW $681
cv%	6.3	2.7	14.4		0	11.4	
l.s.d.	0.25	0.52%	74.7		0.91	1.68%	

- In this trial, applications of lime increased yield significantly when incorporated in the soil profile.
- Lime/incorporation treatments increasd profits up to 33% (AU$228) in comparison to non-limed Wyalkatchem wheat plots.

Table 2.

	Yield t/ha	Plants per m2	Protein %	Vigour	Weight kg/hl	Screenings %	Returns
Hindmarsh Barley + 2.0t Lime, Deep Ripped	3.16 a	112 b	12.5 a	9	68.5 a	4.8 b	FOD1 $ 680.26
Hindmarsh Barley + 4.0t Lime, Deep Ripped	3.12 a	140 ab	12.5 a	9	69.0 a	5.1 b	FOD1 $ 671.44
Hindmarsh Barley +4.0t Lime	2.67 b	166 a	13.0 a	6	68.8 a	7.2 a	FOD1 $ 574.05
Hindmarsh Barley +2.0t Lime	2.60 b	142 ab	13.5 a	5	68.9 a	6.2 ab	FOD1 $ 567.38
Hindmarsh Barley	2.63 b	144 ab	12.9 a	5	68.7 a	6.1 ab	FOD1 $ 565.45
cv%	5.9	9.1	2.1		0.7	10.3	
l.s.d.	0.293	32.5	1.1		1.51	1.57%	

- The same trend as in wheat, applications of lime increased yield significantly only when incorporated in the soil profile.
- Lime/incorporation treatments increased profits up to 20% (AU$115) in comparison to non-limed Hindmarsh Barley plots.
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Comments:

- In this trial the incorporation of lime in the soil profile significantly increased yield in wheat and barley
- In this trial hindmarsh Barley is significantly more responsive than Wyalkatchem wheat to lime incorporaion
- Hindmarsh barley plots with the lime incorporated where visually more vigorous from 4 weeks after seeding

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