

Seed Dressing Trial

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Key messages

- Although there was not a statistical response to the control, all treatments showed signs of being a worthwhile seed dressing.
- There were relatively high yields considering that there was no extra nutrition added other than the seed treatments.

Aim

To compare seed treatments to see if there is a yield response difference from the different treatments compared to the control. Also to and look at early root growth of the different treatments.

Background

There are many nutrient seed dressings that are believed to assist in increasing early vigour of the plant. The benefits of this early vigour is to get good root development and structure within the rhizosphere so that when seed nutrient reserves are exhausted, the plant can take full advantage of both applied and existing soil nutrition.

All products were nutrient based except TM Agricultural and Bioprime, which are both biostimulants to stimulate biology. Bioprime is not recommended as a seed dressing, however it was left in the trial as it was rated third for root vigour and development (behind TM Agricultural then Awaken ST).

Trial Details

Property	Stuart and Leanne McAlpine, west Buntine
Plot size & replication	21 x 10m x 2m, 3 replicates
Soil type	Sandy loam
Sowing date	01/06/2013
Seeding rate	70 kg/ha Corack
Paddock rotation	2010: pasture, 2011: wheat, 2012: pasture
Fertiliser	None
Herbicides	RoundUp Attack @ 2l/ha, Sakura @ 118g/ha, Avadex @ 2l/ha, Diuron @ 400ml/ha. Spray volume was 81l/ha
Harvest date	10/11/2013
Growing Season Rainfall	163 mm

Table 1: Soil test results from sample taken from trial site May 2013

Measurement	Analysis Results
EC (dS.m ⁻¹)	0.0697
pH (CaCl ₂)	4.59
pH (H ₂ O)	5.41
Ammonia-N (mg.kg ⁻¹)	9.77
Phosphate-P (mg.kg ⁻¹)	29.50
Nitrate-N (mg.kg ⁻¹)	0.51
Extractable Calcium (mequiv.L ⁻¹)	10.80
Extractable Magnesium (mequiv.L ⁻¹)	1.46
Extractable Sodium (mequiv.L ⁻¹)	1.80
Extractable Potassium (mequiv.L ⁻¹)	3.40
Total Calcium (mg.kg ⁻¹)	96.60
Total Magnesium (mg.kg ⁻¹)	11.40
Total Sodium (mg.kg ⁻¹)	144.50
Total Potassium (mg.kg ⁻¹)	55.90
Total Iron (mg.kg ⁻¹)	7549.00
Total Manganese (mg.kg ⁻¹)	26.50
Total Copper (mg.kg ⁻¹)	7.18
Total Zinc (mg.kg ⁻¹)	1.99
Carbon (%)	0.5572
Sulphur (%)	0.0078
Moisture Content (%)	5.32

Trial Design

Living Farm were contracted to seed and harvest a triple replicated trial. The plots were 10m long by 2m wide. Harvest width was 1.8m wide.

Results

None of the seed treatments including the control) were significantly different from each other (Table 2).

Table 2: Grain yield and quality results from Corack wheat subjected to different seed treatments at sowing in 2013. None of the treatments (including the control) produced significantly different yields.

Treatment	Yield (t/ha)	Protein (%)	Hectolitre Weight (kg/hL)	Screenings (%)	Grade
Control	1.84 ^a	9.57	83.03	4.01	APW
Bioscience: 2 L/ha Bioprime	1.85 ^a	9.70	83.47	4.01	APW
Nachurs: 0.4 L/ha P Focus	1.94 ^a	9.33	83.14	4.28	ASW
RLF:5 L/ha BSN Superstrike	1.94 ^a	9.47	83.35	3.85	ASW
Best: 0.25 L/ha TM Ag	1.97 ^a	9.50	83.56	3.67	APW
Loveland: 2.5 L/ha Awaken ST	1.99 ^a	9.27	83.40	4.21	APW
Agbalance: 5 L/ha Ag Vig + P	2.05 ^a	9.27	83.36	3.68	APW
LSD (P=0.05)	0.325				
Standard Deviation	0.183				
CV (%)	5.23				
Bartlett's X2	4.492				
P(Bartlett's X2)	0.61				

Economic Analysis

Table 3: Economic Analysis of Gross return, Direct cost and Gross margin (\$/ha) of various seed treatments on Corack wheat grown in 2013.

Treatment	Yield (t/ha)	Gross Return (\$/ha)	Direct Costs (\$/ha)	Gross Margin (\$/ha)
Bioscience: Bioprime	1.85	\$535.96	\$4.80	\$531.16
Control	1.84	\$532.20	\$0.00	\$532.20
Best: TM Ag	1.97	\$571.41	\$12.50	\$558.91
RLF: BSN Superstrike	1.94	\$563.35	\$4.20	\$559.15
Nachurs: P Focus	1.94	\$563.89	\$1.12	\$562.77
Loveland: Awaken ST	1.99	\$576.78	\$3.60	\$573.18
Agbalance: Ag Vig + P	2.05	\$595.04	\$1.23	\$593.81

Wheat price base on farm gate price of \$290/t

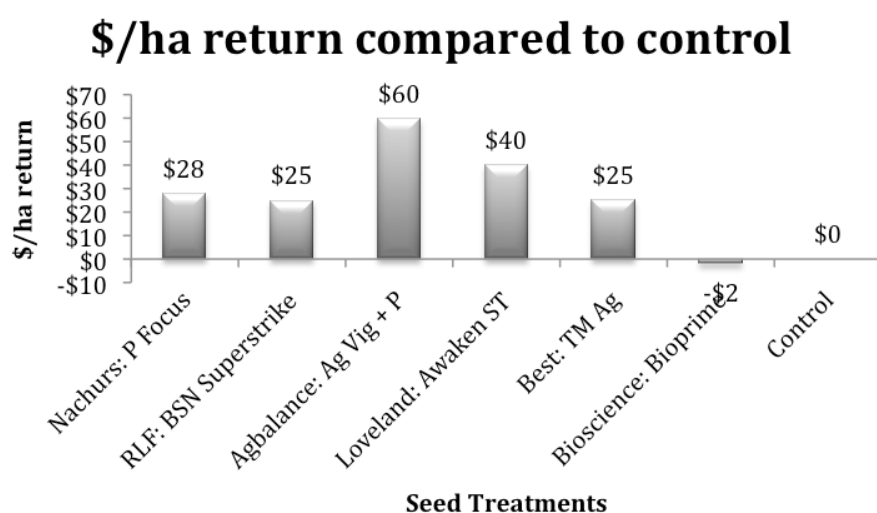


Figure 1: Economic Analysis (\$/ha) of various seed dressing treatments, relative to the control treatment, applied to Corack wheat in 2013.

Comments

The trial was established in ideal growing conditions. It was set up to evaluate many of the different seed treatment strategies that have been employed on the McAlpine farm and some that have not.

It should be noted that Bioprime is not recommended as a seed treatment it did however stimulate good root growth and was rated third for root vigour and development (behind TM Agricultural then Awaken ST).

Although there was no statistical difference at 95% probability there was a trend to increased yield over most replicates compared to the control. When looking at small differences it may be worthwhile to add another replicate. Given that the treatments were of a relatively low investment, the results are encouraging in continuing with seed dressings to assist in seedling development. The yields were remarkable considering this was the only nutrition that the crop received and underlines that we have still much to learn on increasing and understanding nutrition and fertiliser efficiency.

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Contact

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