Project: Reducing variety selection risk through understanding varietal performance with different management packages

Trial contact: David Meharry; e-mail: davemeharry@gmail.com; mobile: 0448 982 727
Merredin and Districts Farm Improvement Group (MADFIG)
Admin officer: Beck Watson, admin@madfig.com.au mobile: 0427 095 608
President: Doug McGinniss dougness3@bigpond.com mobile: 0428 441 024

Background

The National Variety Testing (NVT) trial program provides valuable information on how varieties perform within a 'standardised' testing framework. However NVT trials sometimes fail and locally generated variety information that would have otherwise assisted growers in their variety selection decision making is unavailable.

This trial was established adjacent to the NVT wheat and barley to ensure that some locally generated variety information was available. In 2016 the trial was established and managed by Living Farm.

Trial details

Twelve wheat (Mace, Calingiri, Magenta, Trojan, Hydra, Emu Rock, Zen, Sceptre, Cobra, Impress CL, Supreme and Ninja) and five barley varieties (Spartacus CL, Scope CL, La Trobe, Compass and Fathom) were included in the trial.

There were four nutrient management scenarios in the trial. The fertiliser regimes are designed to investigate variety performance in response to a range of nutrition scenarios that may be in implemented in response to either seasonal conditions or budget restrictions. Fertiliser treatments were banded at seeding and were

Decile 1 - 0 P, 0 N;

Decile 3 - 5 kg/ha P, 10 kg/ha N;

Decile 6 - 5 kg/ha P, 30kg/ha N;

Play the season 5 P, 30 kg/ha N (at seeding) + 20 kg/ha N post emergent

The trial located at Merredin on a red brown loam was sown on the 26th May. Soil moisture conditions were excellent. (Seeding was delayed due to heavy rain the previous week).

Lessons/things to do differently

- While informal inspection of the trial indicated that there was minimal frost damage in retrospect it would have been useful to have conducted formal assessments of the site to determine frost damage.

EXTENSION ACTIVITY:

The trial was presented at the MADFIG Spring Field day on 7th September. The field day was attended by around 50 people.

KEY POINTS:

- In 2016 increasing rates of fertiliser had a positive impact on yield of both wheat and barley. As more fertiliser was applied yield increased from 1.79 t/ha in the no fertiliser applied treatment to 2.89 t/ha in fertiliser treatment 4.
- Significant differences were identified between wheat varieties in yield with Magenta and Trojan being the highest yielding varieties and Impress CL being significantly lower yielding.
- Significant differences were observed in barley yield with Spartacus yielding significantly lower.
- As more fertiliser was applied barley yield increased from 2.43 t/ha to 3.59 t/ha.
- Temperature data from the site showed multiple events below 0°C during September when all varieties were flowering. Yield results were, however are reasonable suggesting that frost damage was minimal.
- Unfortunately the NVT trial results will not be available for the NVT trials that were sown on the same site.

FURTHER WORK REQUIRED:

- Similar activity looking at canola varieties would be useful – or any canola variety work at all.
- Investigation of why protein is so low (average wheat protein ~7.8%)

Acknowledgements:

GRDC for funding project, Camray and Michelle Gethin for hosting the trials, support of Kwinana East RCSN, and Living Farm for establishing and managing the trial.

PHOTOS:

Photo 1: 'Yardstick trial' 2016 spring field day 2016

Photo 2: Inspecting the 'yardstick' trial, MADFIG

Appendix – results

Table 1: Wheat variety yield (t/ha) by fertiliser treatment

	0P 0N	5 P 10 N	5 P 30 N	5 P 30 N + 20 N post	Means	*
Ninja	1.70	2.27	2.59	3.06	**2.41**	bc
Calingiri	1.69	2.17	2.47	2.76	**2.27**	d
Cobra	1.86	2.15	2.61	2.91	**2.38**	bc
Emu rock	1.72	2.07	2.60	2.83	**2.30**	cd
Hydra	1.79	2.25	2.68	3.04	**2.44**	b
Impress CL	1.38	1.60	2.04	2.12	**1.79**	e
Mace	1.93	2.34	2.66	2.88	**2.45**	b
Magenta	2.20	2.52	2.84	3.07	**2.66**	a
Sceptre	1.82	2.26	2.80	2.93	**2.45**	b
Supreme	1.75	2.10	2.63	2.72	**2.30**	cd
Trojan	2.11	2.43	2.96	3.01	**2.63**	a
Zen	1.59	2.35	2.69	2.93	**2.39**	bc
Means	**1.79**	**2.21**	**2.63**	**2.85**		

Significance (variety) P< 0.001 l.s.d. (P<0.005) =0.151
Significance (fertiliser) P< 0.001 l.s.d. (P<0.005) =0.087
Significance (variety x fertiliser) P=NS l.s.d. (P<0.005) = n.a.
* Means followed by same letter or symbol do not significantly differ

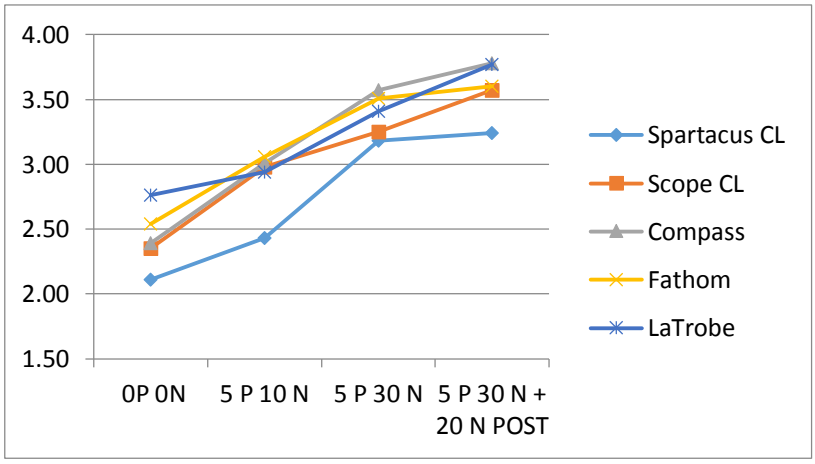

Figure 1: Barley variety yield t/ha under different fertiliser regimes.