

3.2.3 Wheat variety trial - Bairnsdale, Vic

Location: SFS Dunkeld Research Site

Funding:

This was an SFS Gippsland Branch Funded Trial

Researcher(s):

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Summary of findings:

- Amarok yielded highest out of the TOS1 wheat varieties. Bolac and Wedgetail had the highest protein content.
- Preston produced the highest yield of the TOS2 wheat varieties.
- For varieties grown in both TOS and TOS2, their combined average yields were significantly higher in TOS2 than TOS1. The test weight for TOS2 wheat also tended to be higher than the test weight of the varieties of wheat grown at TOS1.
- Longer maturity varieties in each trial tended to out-yielded shorter season cultivars

Acknowledgements:

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Background/Aim:

To evaluate a range of commercially available varieties for yield and grain quality, sown at two sowing times. These reflect the most widely grown varieties in the area and include others that may be considered in the future. They include a number of different grades, reflecting market options in Southern Victoria.

Rainfall:

2011 Total: 737.4 mm
Avg. Annual: 644.7 mm
2011 G.S.R.: 496 mm
Avg. G.S.R.: 444.1 mm

Paddock History:

2009: Canola
2010: Winter fallow, Summer Millet

Soil Characteristics:

Soil Type: Brown Sodosol – Sandy loam over medium-heavy clay subsoil
pH (1:5 CaCl): 6.1
Deep N (kg N/ha): TOS1 6.4 (0 – 50cm), TOS2 18.7 (0 – 50cm)
P (Colwell) (mg/kg): 35
K (Colwell) (mg/kg): 81
Organic Carbon %: 1.8

Yield Potential: The Water Limited Yield Potential (WLYP) for this trial was 8.5t/ha

*WLYP: Calculated using WUE values of 15kg/ha per mm rainfall for Wheat/Barley and 7kg/ha per mm rainfall for Canola, 130mm assumed evaporation and GSR of 30% Jan & Feb + 50% Mar (only if >20mm) + April to November. This calculation makes an allowance for a % of stored moisture from the summer

Variety: Various

Sowing rate: Aiming to establish 160 plants/m²

Sowing date: TOS 1 - 18-May-11

TOS 2 – 29-Jun-11

Harvest: 3rd-5th Jan 2012

Plot size: 20m x 1.26m x 4 reps.

Plots/tillage: Flat layout. Cultivated with Vaderstad Topdown 12th May 2011 prior to sowing

Fertiliser TOS1: 18-May-11 DAP 80kg/ha,
SOP 30kg/ha
2-Sep-11 Urea 100kg/ha
11-Oct-11 Urea 60kg/ha

Fertiliser TOS2: 29-Jun-11 DAP 80kg/ha,
SOP 30kg/ha

	2-Sep-11	Urea 100kg/ha
	2-Nov-11	Urea 60kg/ha
Herbicide:	29-Mar-11	Roundup 2.5l/ha, Surpass 0.415l/ha, Goal 75ml/ha
	12-May-11	Treflan 800ml/ha incorporated with Vaderstad Topdown
	23-Aug-11	Tigrex 1l/ha
Fungicide:	27-Sep-11	Prosaro 150ml/ha, Hasten 1L/ha
	11-Nov-11	Prosaro 300ml/ha, Hasten 1L/ha

Measurements: Grain yield and grain quality components.

Tillage type: The trial was sown with SFS Gippsland's Agriplow cone seeder on 21cm row spacing's using 2.5cm baker boot and knifepoints. Millet stubble was cut and baled prior to sowing.

Diseases: There was early disease pressure in susceptible wheat varieties to *Septoria tritici* due to the wet start to the growing season. This pressure eased off as the crop developed and after the first in-crop fungicide application. Stripe rust was also present later in the season however it was adequately controlled with in-crop fungicides and did not cause too many issues. Stem rust, due to the high inoculum pressure experienced in 2010, was expected to be a problem in 2011, but only small amounts were seen in a few susceptible varieties and again in-crop fungicides were effective in controlling disease.

Results and discussion:

Table 1. Yield and quality performance for TOS1 wheat varieties in Bairnsdale.

Variety	Yield (t/ha)		Protein (%)	Test Weight (kg/hl)	Screening (%)
Amarok	5.88	a	7.63	62.97	1.5
Einstein	5.68	a	7.69	62.8	0.8
Frelon	5.56	a	8.93	65.68	2.5
Revenue	5.49	a	7.78	63.79	1.8
Brennan	5.44	a	9.83	67.93	1.1
Beaufort	5.43	a	8.91	64.52	2.2
Bolac	5.39	a	11.15	68.91	1.2
Mackellar	5.35	a	8.77	65.34	2.8
Preston	4.99	a	9.02	64.41	1.8
Wedgetail	4.71	a	10.47	64.33	1.2
Forrest	4.36	a	9.81	67.22	1.8
Derrimut	4.16	a	10.3	69.7	2.3
LSD (P=.05)	1.2		1.25	4.5	1.14
CV	13.6		9.26	4.67	44.51

Means followed by same letter do not significantly differ (P=.05, LSD).

Table 2. Yield and quality performance for TOS2 wheat varieties in Bairnsdale.

Wheat Barmscore:					
Variety	Yield (t/ha)		Protein (%)	Test Weight (kg/hl)	Screening (%)
Preston	7.07	a	10.63	70.73	2.3
Mackellar	6.76	a	10.07	72.33	5.3
Beaufort	6.62	ab	9.77	71.2	3
Bolac	6.11	bc	11.57	75.67	2.3
Derrimut	5.77	c	12.13	75.6	2.7
Lincoln	5.56	c	13.03	72.27	3
LSD (P=.05)	0.61		1.01	3.89	1.54
CV	5.27		4.96	2.93	26.73

Means followed by same letter do not significantly differ (P=.05, LSD).

There was no significant difference in yield between varieties at TOS1. The highest yielding variety in TOS1 was Amarok (5.9t/ha), followed by Einstein, Frelon and Revenue however, their yields were not significantly greater than others in the TOS1 trial. For varieties in TOS2 trial, Preston (7.1t/ha), followed by Mackellar then Beaufort were the highest yielding varieties, with the top two yielding varieties being significantly higher yielding than Bolac, Derrimut and Lincoln.

It is interesting to try to establish why a sowing, 6 weeks after the first sowing timing, would not only produce 1.1t/ha more yield but also an average protein increase of 2%, especially as the same rate of N was applied to the trial.. Less disease pressure was observed in the later sown crops and the long soft finish experienced this year may have influenced this result. Longer maturity varieties in each trial often out-yielded shorter season cultivars, which may have been a reflection of the long/soft growing season experienced in Gippsland.