

## 2.2 Barley

### 2.2.1 Autumn Sown Barley Variety Trial - Inverleigh, Vic

**Location:** Inverleigh

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**Funding:**

Thanks to the members and sponsors for supporting the trial.

**Acknowledgements:**

Thanks to John Hamilton for providing the land for the trial programme.

**Researchers:**

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**Rainfall (mm):**

2007 Annual: 528.6 mm

GSR (April – November): 393 mm

**Summary of Findings:**

- Average treated barley yields in the trial were 4.40 t/ha (5.2 t/ha 2006).
- The timing of the rain in November came too late to significantly influence yield.
- Of the 13 varieties included in the trial, six are not commercially available at present.
- The highest yielding commercially available variety was Capstan at 126% of the site mean yield.
- The top yielding malt variety was Baudin.
- Disease pressure at the site was low.

**Background:**

New malting barley varieties need to be thoroughly tested across a number of years before they will be considered in either domestic or export malting or brewing markets. This trial compares a number of varieties that are either commercially available or close to commercial release that may be suitable for either malting or feed markets in southern Victoria. This trial differs from other comparative crop variety testing in that it evaluates the varieties with a fungicide programme to determine the yield response of the varieties to controlling foliar leaf diseases against a control of no fungicide. Additionally, the management of inputs in the trial is based on the objective to gain the best margin per hectare.

**Trial Design:**

A replicated randomized block design consisting of 3 repetitions treated with foliar fungicide and 1 repetition untreated with foliar fungicide to demonstrate local disease pressure and varietal susceptibility. Plot length of 12 metres and plot width of 1.45 metres.

▼ **Table 2.11: Trial inputs**

<b>Previous Crop:</b>	Wheat
<b>Sowing Date:</b>	4 June 2007
<b>Harvest Date:</b>	4 January 2008

▲ **Photo 2.1: Gairdner Barley (GS12) early establishment - 25<sup>th</sup> June 2007**

▼ **Photo 2.2: Gairdner Barley (GS32) – 21<sup>st</sup> September 2007**



	Product	Rate	Date Applied
Herbicides	Roundup PMax	1.5Lt	28 May 2007
	Triflur X	1.2Lt	28 May 2007
	Striker	0.1Lt	28 May 2007
	Dual Gold	0.25Lt	4 June 2007
	Diuron	0.5Lt	4 June 2007
	Tigrex	0.55Lt	2 August 2007
Fertiliser	MAP	100 Kg	4 June 2007
	Urea	90 Kg	16 July 2007
Fungicides	Tilt	0.25Lt	13 September 2007
	Tilt	0.25Lt	8 October 2007

**Results:**▼ **Table 2.12: Grain yield, corrected to 12.5% moisture, sprayed with fungicide, yield as % of Gairdner**

Entry No.	Variety	Yield (t/ha)	Significant Difference <sup>1</sup>	Yield % Gairdner	Quality
8	Capstan	5.54	a	118%	Feed
7	Yarra	4.73	b	101%	Feed
1	Baudin	4.73	b	101%	Malting
9	Gardiner	4.68	bc	100%	Malting
5	WI4262	4.56	bcd	97%	Malting (Prov)
14	WABAR2315	4.40	bcde	94%	Malting (Prov)
13	VBO 432	4.36	cde	93%	Malting (Prov)
4	Fitzroy	4.32	de	92%	Malting - NSW
2	Buloke	4.30	de	92%	Malting
6	WI3930	4.08	ef	87%	Feed (Hulless)
10	Flagship	3.88	f	83%	Malting
12	1234	3.84	f	82%	Malting (Prov)
11	1228	3.81	f	81%	Malting (Prov)
<b>Mean</b>		<b>4.40</b>			
<b>LSD (P=.05)</b>		<b>0.347</b>			
<b>CV</b>		<b>4.67</b>			

<sup>1</sup> Means followed by same letter do not significantly differ (P=.05, LSD)

The two highest yielding varieties in the trial were the feed barleys Capstan and Yarra, but only Capstan gave a statistically significant yield advantage over the top six varieties. This is the third consecutive year that Capstan has been the top yielding variety, with an average 13% advantage above Gairdner. In situations of high fertility, where grain protein may be too high for malt quality and straw strength may be a problem, Capstan should be an option given its consistent performance and short, stiff straw and excellent head retention.

There were four varieties in the trial with full malting quality accreditation; Baudin, Gairdner, Flagship and most recently Buloke. The varieties Baudin and Gairdner yielded significantly higher than Flagship and Buloke, which reflects their better suitability to the higher rainfall environment/season length in southern Victoria and the fact that there was low foliar disease pressure in the 2007 season. Over the last two years Baudin, Buloke and Flagship have yielded 98%, 97% and 93% of Gairdner yields respectively.

▼ Table 2.13: Grain quality for barley varieties evaluated at Inverleigh site 2007

Variety	Test Wt (Kg/hl)	Retention (%)	Screenings (%)	Protein
Capstan	57.41	90.3	2.3	11.67
Yarra	54.87	96.7	1.0	11.63
Baudin	57.93	94.0	1.0	11.07
Gardiner	61.29	93.7	1.3	12.17
WI4262	60.28	96.3	1.3	11.17
WABAR2315	60.12	96.7	1.3	11.90
VBO 432	58.98	93.0	1.7	11.43
Fitzroy	54.67	94.0	1.3	11.37
Buloke	56.59	90.0	2.7	12.43
WI3930	61.85	55.3	6.7	12.70
Flagship	60.09	91.7	2.3	12.13
1234	61.21	92.3	2.0	11.50
1228	59.77	94.7	1.3	12.07
Mean	<b>58.85</b>	<b>90.7</b>	<b>2.0</b>	<b>11.79</b>
LSD (P=.05)	<b>2.67</b>	<b>2.16</b>	<b>0.96</b>	<b>0.953</b>
CV	<b>2.69</b>	<b>1.41</b>	<b>28.23</b>	<b>4.8</b>

Three new potential malting varieties yielded statistically the same as Gairdner in this trial: WI4262, WABAR2315 and VBO432.

#### WI4262

- a semi dwarf variety with stiff straw
- flowering time similar to Gairdner
- outstanding physical grain quality
- good disease resistance except susceptibility to leaf rust
- ideally suited to domestic brewing market

#### WABAR2315

- mid-late maturity, advanced breeding line from the Western Australia
- potential replacement for Gairdner and Baudin
- decision taken in February 2008 to discontinue the line in favour of the sister line WABAR2312, which has slightly plumper grain and slightly higher grain yield

#### VBO432

- bred from a Gairdner cross, has improved grain plumpness and yield
- resistance to leaf rust, and improved resistance to scald and SFNB compared to Gairdner
- best suited to export malt and brewing markets
- release unlikely to occur until the successful completion of commercial malting and brewing trials at the end of 2011

The disease levels in this trial were extremely low which resulted in the untreated plots yielding at very similar levels to the treated. The retention levels over a 2.5mm screen and the very low screenings further support this. The apparent low test weight results at Inverleigh are as a result of harvesting difficulties in removing the awns impact that has on how the seed packs when being weighed.

Interestingly, the highest test weight came from WI3930, which is a hulless animal feed barley, however it also had significantly the lowest retention at 55.3% and the highest screenings and protein.

#### Trial Observations:

Varietal susceptibility to head retention became evident at harvest. Gairdner, VBO432 and WABAR2315 being very poor at retaining heads whereas Capstan, Baudin and WI4262 were particularly good.