

# Comparison of barley varieties

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## Key Findings

- Barley grain yields ranged from 2.04 – 2.42 t/ha, with a trial average of 2.25 t/ha.
- A range of feed and malt varieties performed well in a decile one rainfall season (162 mm growing season rainfall at Hart).
- Test weight, protein and screenings levels across all malt varieties were good, averaging 67.9 kg/hL, 9.7% and 2.1%, respectively.

## Why do the trial?

To compare the performance of new barley varieties against the current industry standards.

## How was it done?

<b>Plot size</b>	1.75 m x 10.0 m	<b>Fertiliser</b>	DAP (18:20) + Zn 2% + Impact @ 75 kg/ha
<b>Seeding date</b>	May 15, 2019		Easy N (42.5:0) @ 55 L/ha on Oct 7, 2019
<b>Location</b>	Hart, SA		

The trial was a randomised complete block design with three replicates and 15 barley varieties. Fungicides and herbicides were applied as necessary to keep the canopy free of disease and weeds. All plots were assessed for grain yield, protein, test weight, screenings (with a 2.2 mm screen) and retention (with a 2.5 mm screen).

## Results and discussion

The highest yielding malt barley varieties at Hart in 2019 were LaTrobe and Compass at 2.41 and 2.38 t/ha, respectively (Table 1). RGT Planet and Spartacus CL were also high yielding along with Maximus CL (pending malt accreditation). On average both of these Clearfield varieties had a 10% yield advantage over Scope yielding 2.04 t/ha. Long-term data comparing the last five seasons (Table 2) shows Compass and LaTrobe have been above average at Hart over a number of years.

Feed variety yields ranged from 2.24 – 2.42 t/ha (Table 1). Rosalind, Fathom and Hindmarsh were the highest yielding feed varieties at Hart this season. Long-term yield data shows Fathom, Fleet and Rosalind have consistently yielded well at Hart (Table 2).

Grain protein only varied by 1.0% across all varieties ranging from 9.3 – 10.3%. All malt varieties contained protein values between 9.0 - 12.0% to achieve Malt 1 classification.

The test weights for all malt varieties were above the minimum 65 kg/hL. Spartacus CL, GrangeR and Scope had the highest test weights this season. For feed varieties Banks, Fathom, Hindmarsh and Rosalind all meet the minimum test weight (62 kg/hL) required for Feed 1 classification.

Screening levels across the trial were low, averaging 2.8%. All varieties were below the maximum level for highest classification within the feed or malt category, respectively.

Table 1. Grain yield (t/ha), protein (%), test weight (kg/hL), screenings and retention (%) of barley varieties at Hart 2019.

Quality	Variety	Grain yield t/ha	% of site average	Protein %	% of site average	Test weight kg/hL	% of site average	Screenings %	% of site average	Retention %	% of site average
Feed	Banks	2.24	99	9.8	100	71.7	107	4.3	156	41.0	61
	Fathom	2.33	104	10.0	102	63.7	95	2.5	89	71.7	106
	Fleet	2.25	100	10.3	106	61.1	91	2.3	83	70.1	104
	Hindmarsh	2.32	103	9.7	99	68.1	102	3.2	115	64.4	96
	Keel	2.28	101	9.9	101	61.9	92	5.9	213	65.7	98
	Rosalind	2.42	107	9.4	96	67.1	100	4.4	158	64.2	95
<i>F1 Receival Standards</i>				NA		>62.5		<15%		NA	
Malt	Commander	2.11	93	10.0	102	65.3	97	2.2	79	82.7	123
	Compass	2.38	106	9.3	96	67.1	100	1.7	60	88.4	131
	GrangeR	2.11	93	9.7	100	69.7	104	1.7	63	63.2	94
	LaTrobe	2.41	107	9.4	97	68.9	103	2.5	89	60.8	90
	Navigator	2.10	93	10.2	105	65.1	97	1.4	52	68.2	101
	RGT Planet	2.28	101	9.6	98	67.2	100	4.5	162	52.0	77
	Scope	2.04	91	9.7	99	69.6	104	1.1	39	56.2	83
	Spartacus CL	2.25	100	9.5	98	70.7	105	1.6	56	81.7	121
<i>Malt 1 Receival Standards</i>				9-12%		>65		<7%		>70%	
Pending malt accreditation	Maximus CL (IGB1705T)	2.30	102	9.7	100	69.2	103	2.4	86	79.2	118
<b>Site Average</b>		<b>2.25</b>	<b>100</b>	<b>9.8</b>	<b>100</b>	<b>67.1</b>	<b>100</b>	<b>2.8</b>	<b>100</b>	<b>67.3</b>	<b>100</b>
LSD (P≤0.001)		0.12		0.4		1.7		0.9		6.7	

Retention levels varied among the malt varieties ranging from 52.0 – 88.4%. A large number of varieties fell below 70% required for Malt 1 including; GrangeR, LaTrobe, Navigator, RGT Planet and Scope (Table 1). In contrast Commander, Compass and Spartacus CL all had high retention levels along with Maximus CL (pending malt accreditation).

Table 2. Long term barley variety performance at Hart by year (expressed as % trial average).

Quality	Variety	% of trial average					Grain yield (t/ha)
		2015	2016	2017	2018	2019	2019
Feed	Banks				103	99	2.24
	Fathom	112	104	94	109	104	2.33
	Fleet	107	100	104	106	100	2.25
	Hindmarsh	108	92	98	100	103	2.32
	Keel	112	97	102	105	101	2.28
	Rosalind		104	91	102	107	2.42
Malt	Commander	100	92	102	104	93	2.11
	Compass	111	86	106	105	106	2.38
	GrangeR	93	103	108	89	93	2.11
	La Trobe	107	94	104	99	107	2.41
	Navigator	92	113	111	96	93	2.10
	RGT Planet			134	97	101	2.28
	Scope	99	94	89	89	91	2.04
	Spartacus CL	106	95	98	98	100	2.25
Pending malt accreditation	Maximus CL (IGB1705T)					102	2.30
<b>Mean yield (t/ha)</b>		<b>4.38</b>	<b>4.62</b>	<b>4.36</b>	<b>2.86</b>	<b>2.25</b>	
Sowing date		6th May	10th May	8th May	14th May	15th May	
April - Oct (mm)		230	356	191	160	162	
Annual rainfall (mm)		353	485	331	224	189	

### Acknowledgements

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