

Comparison of barley varieties

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Key Findings

- Barley grain yields ranged from 2.54 – 3.11 t/ha, with a trial average of 2.86 t/ha.
- A range of feed and malt varieties performed well in a below average rainfall season (160 mm growing season rainfall at Hart).
- Test weight, protein and screening levels across all malt varieties were good, averaging 70 kg/hL, 10.7% and 1.6%, respectively.

Why do the trial?

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

How was it done?

Plot size	1.75 m x 10.0 m	Fertiliser	DAP (18:20) + Zn + Impact @ 60 kg/ha
Seeding date	14 th May 2018		UAN (42:0) @ 60 L/ha on 17 th July
			UAN (42:0) @ 55 L/ha on 2 nd August

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

Results and discussion

The highest yielding malt variety at Hart was Compass (3.01 t/ha), followed by Commander and Charger both yielding 2.98 t/ha (Table 1). Banks and RGT Planet are currently undergoing malt accreditation and also performed well this season, with grains yields of 2.94 and 2.78 t/ha, respectively. Spartacus CL was the higher yielding CL malt variety (2.80 t/ha) compared to Scope (2.54 t/ha). Feed variety yields ranged between 2.86 – 3.11 t/ha, with Fathom the highest yielding.

The long-term yield data shows feed varieties Fathom, Fleet and Keel continue to perform well across a range of seasons at Hart (Table 2). Within the malt varieties there is greater variation in the long-term yields. In general Compass and LaTrobe have performed well at Hart across a number of seasons.

Grain protein only varied by 1.3% across all varieties ranging from 10.1 – 11.4%. The site grain protein levels for malting varieties averaged 10.7%, in the range to achieve malt 1 classification. All test weights for feed and malt varieties were above the minimum 62.5 and 65 kg/hL, respectively.

Screenings were low across all varieties, averaging 1.8%. Retention levels ranged from 70.9 – 92.2%, all above the 70% minimum for malt 1 classification. Banks was the only variety to have a retention less than 70% (57.8%).

Table 1. Grain yield (t/ha), protein (%), test weight (kg/hL), screenings and retention (%) of barley varieties at Hart 2018.

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	Fathom	3.11	109	10.6	98	67.9	97	1.0	54	93.8	112
	Fleet	3.03	106	11.4	105	66.4	95	1.1	63	97.7	117
	Hindmarsh	2.86	100	10.4	97	70.6	101	1.7	94	85.8	102
	Keel	2.99	105	10.3	96	69.1	99	3.2	178	86.3	103
	Rosalind	2.92	102	10.8	100	68.7	99	2.3	124	87.3	104
<i>F1 Receival Standards</i>				NA		>62.5		<15%		NA	
Malting	Charger	2.98	104	10.7	99	68.5	98	1.7	91	81.8	98
	Commander	2.98	104	10.6	98	68.4	98	2.1	113	84.5	101
	Compass	3.01	105	10.1	94	69.7	100	1.0	55	92.2	110
	GrangeR	2.55	89	11.2	103	71.2	102	2.5	138	70.9	85
	LaTrobe	2.83	99	10.5	97	70.8	102	1.4	79	87.4	104
	Navigator	2.74	96	10.7	99	69.7	100	1.3	73	82.5	98
	Scope	2.54	89	11.2	103	70.6	101	1.3	70	88.8	106
	Spartacus CL	2.80	98	11.2	103	70.9	102	1.8	101	82.7	99
	<i>Malt 1 Receival Standards</i>			9-12%		>65		<7%		>70%	
	pending malt accreditation	2.94	103	11.2	104	72.1	103	3.4	186	57.8	69
	RGT Planet	2.78	97	11.3	104	71.0	102	1.6	90	78.0	93
	Site Average	2.86	100	10.81	100	69.7	100	1.82	100	83.83	100
	LSD (P≤0.05)	0.36		0.36		1.22		0.98		10.92	

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

		% of trial average					
Quality	Variety	2013	2014	2015	2016	2017	2018
Feed	Fathom	109	113	112	104	94	109
	Fleet	103	106	107	100	104	106
	Hindmarsh	110	103	108	92	98	100
	Keel	107	112	112	97	102	105
	Rosalind				104	91	102
Malt	Charger	99	106	105	114	97	104
	Commander	104	105	100	92	102	104
	Compass	109	111	111	86	106	105
	GrangeR	100	108	93	103	108	89
	La Trobe	109	105	107	94	104	99
	Navigator	99	101	92	113	111	96
	Schooner	89	87	100	73	49	
	Scope	95	97	99	94	89	89
	Spartacus CL			106	95	98	98
Pending malt acc	Banks						103
	RGT Planet					134	97
	Mean yield (t/ha)	5.03	4.74	4.38	4.62	4.36	2.86
	Sowing date	18th May	15th May	6th May	10th May	8th May	14th May
	April - Oct (mm)	303	280	230	356	191	160
	Annual rainfall (mm)	377	426	353	485	331	224