

Comparison of barley varieties

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Key Findings

- Oxford, Rosalind, Fathom and Fleet were the highest yielding feed barley varieties at Hart averaging 4.96 t/ha.
- Admiral, Charger and Navigator were the highest yielding commercially available malt varieties averaging 5.28 t/ha.
- Test weights, retention and screening levels were good across the trial with site averages of 65.8 kg/hL, 97.4% and 0.6% respectively.

Why do the trial?

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

How was it done?

Plot size	1.75 m x 10.0 m	Fertiliser	DAP (18:20) + Zn 2% @ 100 kg/ha
Seeding date	10 th May 2016		UAN (42:0) @ 95 L/ha, 4 th July
		Fungicide	Systiva @ 150 mL/100 kg seed
			Amistar Xtra @ 400 mL/ha, 6 th Aug
			Propiconazole (500 g/L) @ 250 mL/ha, 12 th Sept

The trial was a randomised complete block design with three replicates and 21 varieties. Fungicides and herbicides were applied as necessary to keep the crop canopy free of disease and weeds. All plots had the plot ends removed prior to harvest and 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 later maturing feed barley varieties, Oxford and Rosalind, were the highest yielding at Hart in 2016 at 5.63 and 4.83 t/ha, respectively (Table 1). Other high yielding feed varieties included Fathom and Fleet both yielding above 4.50 t/ha. The site average yield across all feed varieties was 4.60 t/ha. The lowest yielding feed varieties were Hindmarsh and Maritime both at 4.25 t/ha.

The highest yielding malt varieties were Admiral, Charger, Navigator, Bass and GrangeR ranging from 4.80 to 5.30 t/ha. Similarly, it was the later maturing varieties that were higher yielding. Explorer, was also high yielding at 5.25 t/ha. The average yield across all malt varieties at Hart was 4.61 t/ha. Long term yield results indicate that Charger, Navigator, La Trobe and GrangeR (>105%) continue to perform well in grain yield over a number of seasons.

Grain protein levels for all malt barley varieties averaged 9.5% across the trial. All malting varieties except for Navigator fell between the allowable protein range of 9-12% for malt classification.

Only two malting varieties fell below the minimum test weight specification of 65 kg/hL, which were Admiral and Charger. All feed varieties were above the minimum test weight specification for F1 feed barley of 62.5 kg/hL.

Screening levels across the trial averaged 0.6%, well below previous seasons. Retention levels across the whole trial were very high with a trial average of 97.4%. All commercially available malt varieties were well above the minimum retention specification for malt 1 (70%).

Table 1. Grain yield (t/ha), protein (%), test weight (kg/hL), screenings and retention (%) of barley varieties at Hart in 2016. Mean grain yield (% of trial average) of Hart barley variety trials (2010-2016) and number of trials.

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	Mean yield 2010-2016	No. of trials
Feed	Fathom	4.80	104	10.2	107	65.0	99	0.6	95	97.7	100	113	6
	Fleet	4.60	100	9.8	103	64.6	98	0.5	86	97.7	100	109	7
	Hindmarsh	4.25	92	9.7	102	66.9	102	1.0	157	95.2	98	107	7
	Keel	4.47	97	10.4	109	65.5	99	0.7	116	97.7	100	107	7
	Maritime	4.25	92	10.4	109	64.9	99	0.4	69	98.7	101	93	7
	Oxford	5.63	122	8.0	84	67.5	103	0.5	90	97.3	100	99	7
	Rosalind	4.83	104	8.9	93	64.7	98	0.5	89	97.1	100	-	-
	<i>F1 receival standard</i>												
	NA												
	<15												
Malting	Admiral	5.31	115	9.0	94	63.8	97	0.5	80	97.9	101	-	-
	Bass	4.91	106	10.0	105	66.8	102	0.5	80	98.5	101	100	5
	Buloke	4.61	100	9.8	103	66.1	100	0.5	106	96.0	99	102	7
	Charger	5.27	114	9.2	96	64.6	98	0.8	135	97.2	100	106	4
	Commander	4.25	92	9.5	100	66.6	101	0.6	94	97.7	100	105	7
	GrangeR	4.77	103	9.4	99	67.1	102	0.6	91	98.2	101	95	6
	La Trobe	4.33	94	9.5	99	67.4	102	0.9	141	95.7	98	105	5
	Navigator	5.24	113	8.7	91	66.1	100	0.5	80	98.1	101	105	7
	Schooner	3.36	73	10.4	109	67.0	102	0.7	119	96.6	99	91	7
	Scope	4.36	94	9.8	103	66.2	101	0.6	95	97.0	100	98	7
	SouthernStar	4.27	92	9.7	102	66.9	102	0.4	69	98.3	101	-	-
	<i>Malt 1 receival standard</i>												
	>65.0												
	>70												
Unclassified	Explorer (EB1401)	5.25	114	8.9	93	63.4	96	0.8	137	97.0	100	-	-
Pending malt accreditation	Spartacus CL	4.38	95	9.8	103	67.1	102	0.7	115	96.9	100	-	-
	Compass	3.96	86	9.3	98	64.2	98	0.4	58	98.5	101	106	5
Site Average		4.62	100	9.5	100	65.8	100	0.6	100	97.4	100		
LSD (P≤0.01)		0.66		0.88		1.35		0.28		1.03			

- Insufficient data (included in Hart barley variety trials for less than three seasons)