Comparison of barley varieties

Dylan Bruce, Hart Field-Site Group

Key Findings

- Oxford, Fleet, Hindmarsh and Keel were the highest yielding feed barley varieties at Hart averaging 4.57 t/ha.
- Navigator, GrangeR and LaTrobe were the highest yielding malt barley varieties averaging 4.68 t/ha.
- RGT Planet (undergoing malt accreditation) was the highest yielding barley variety at Hart, at 5.85 t/ha.

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) + Impact @ 100 kg/ha
Seeding date	8th of May 2017		UAN (42:0) @ 60 L/ha on 3rd July

This trial was a randomised complete block design with three replicates and 18 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 retention with a 2.5 mm screen.

Results and discussion

The highest yielding barley variety at Hart in 2017 was RGT Planet (pending malt accreditation) which yielded 5.85 t/ha, over 1.0 t/ha more than the next highest variety. The highest yielding malt variety was Navigator with 4.82 t/ha, followed by GrangeR and LaTrobe with 4.72 t/ha and 4.52 t/ha, respectively. Compass (pending malt accreditation) also yielded in this range at 4.60 t/ha. The lowest yielding malt variety was Schooner at 2.12 t/ha due to head loss from strong winds at the beginning of November (data not shown).

Oxford, Fleet, Hindmarsh and Keel were the highest yielding feed barley varieties yielding between 4.28 and 4.72 t/ha. The remaining varieties trialled were Fathom and Rosalind yielding slight lower on average at 4.04 t/ha. Long-term barley yield results show Fathom (110%), Fleet (108%) and Keel (107%) continue to perform well across a number of seasons at Hart.

Grain protein levels for all malt varieties averaged 7.5%, lower than the required 9.0% minimum for malting classification. Test weights for all malt varieties were above the minimum 65 kg/hL for maximum grade, while all feed varieties met the minimum 62.5 kg/hL for F1 barley classification.

Screening levels across the trial were low, averaging 1.2%. Retention levels across the trial were high, averaging of 91.4%, with all malt varieties exceeding the minimum 70% retention requirement for malt 1 classification.

Table 1. Grain yield (t/ha), protein (%), test weight (kg/hL), screenings and retention (%) of barley varieties at Hart in 2017. Mean grain yield (% of trial average) of Hart barley variety trials (2010-2017) 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 2010-2017	No. of trials
Feed	Fathom	4.09	94	8.4	109	69.0	98	1.2	99	92.5	101	110	7
	Fleet	4.53	104	8.1	107	65.9	94	1.4	115	84.8	93	108	8
	Hindmarsh	4.28	98	8.3	108	72.7	104	1.7	144	90.5	99	106	8
	Keel	4.46	102	8.0	105	70.4	100	1.0	80	95.8	105	107	8
	Oxford	4.72	108	6.8	88	70.8	101	1.6	134	79.6	87	100	8
	Rosalind	3.99	91	8.2	107	71.0	101	0.9	78	92.3	101	-	
	F1 receival standard			*NA*		*>62.5*		*<15*		*NA*			
Malting	Charger	4.21	97	8.1	105	68.9	98	2.0	169	87.4	96	104	5
	Commander	4.44	102	8.1	105	68.6	98	2.1	177	88.6	97	104	8
	GrangeR	4.72	108	7.3	96	71.3	102	0.7	58	95.0	104	97	7
	La Trobe	4.51	104	7.5	98	73.3	104	1.2	97	91.7	100	105	6
	Navigator	4.82	111	7.2	94	68.4	97	0.7	55	94.5	103	106	8
	Schooner	2.12	49	7.9	103	71.9	102	0.9	79	94.5	103	86	8
	Scope	3.89	89	7.1	93	72.1	103	0.7	56	93.0	102	97	8
	Westminster	4.44	102	7.3	95	71.3	102	0.6	53	94.4	103	88	6
	Malt 1 receival standard			*9-12%*		*>65.0*		*<7.0*		*>70.0*			
Unclassified	Explorer (EB1401)	4.49	103	7.5	98	67.4	96	1.1	89	93.2	102	-	
Pending malt accreditation	Compass	4.60	106	8.1	105	70.9	101	0.7	56	96.6	106	106	6
	RGT Planet	5.85	134	6.3	82	69.5	99	1.1	94	89.1	97	-	
	Spartacus CL (IGB1334T)	4.29	98	7.2	94	73.4	105	0.7	61	94.6	103	-	
	Site Average	4.36	100	7.6	100	70.2	100	1.2	100	91.4	100		
	LSD (P≤0.05)	0.57		1.37		1.09		0.60		5.00			

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