

Comparison of wheat varieties

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Key Findings

- Scepter, Scout, Phantom and Cosmick were the highest yielding commercially available AH varieties at Hart in 2015, yielding between 4.48 and 4.71 t/ha.
- Trojan was the highest yielding APW variety at 4.84 t/ha.
- Test weight and screening levels across the trial averaged 80.5 kg/hL and 2.3%.

Why do the trial?

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

How was it done?

Plot size	1.75 m x 10 m	Fertiliser	DAP (18:20) + Zn 2% @ 100 kg/ha
Seeding date	6 th May 2015		UAN (42:0) @ 95 L/ha, 8 th July UAN (42:0) @ 48 L/ha, 11 th Aug

The trial was a randomised complete block design with 3 replicates and 21 varieties. Fungicides and herbicides were applied as necessary to keep the crop canopy free of disease (ie. stripe rust) and weeds. All plots had the edge rows removed prior to harvest and were assessed for grain yield, protein, test weight and screenings with a 2.0 mm screen.

Results and discussion

Wheat grain yields ranged from 2.19 t/ha for Hatchet CL Plus up to 4.84 t/ha for Trojan (Table 1), with an average site yield of 4.27 t/ha. During the season it was evident that earlier maturing varieties had been impacted by frost and this should be taken into account when interpreting the results. The highest yielding varieties were Trojan, Scepter and Scout, closely followed by Phantom, LPB111727, Cosmick, LPB111728, Cutlass, Cobra and Estoc, all yielding above 4.40 t/ha. The long-term variety yield data shows Trojan and Emu Rock also performed well over a range of seasons yielding 108% of the trial averages. Although not in the top yielding varieties at Hart in 2015, both Mace and Corack also have high mean yields of 109% and 107%, respectively.

Wheat grain proteins were generally low (less than 10.5%) across the trial. Those varieties able to achieve levels for Hard 1 or 2 classification were Hatchet CL Plus, Axe and Wallup. This result relates to yield dilution effects (lower yield = higher protein). A larger number of varieties met the protein level for APW (minimum 10.5%) including Gladius, AGT Katana, Emu Rock and Mace.

Grain test weights across the trial averaged 80.5 kg/hL and all varieties exceeded 76 kg/hL, the minimum required for maximum grade (Table 1). Screening levels at the site averaged 2.3% and all varieties fell below the maximum level of 5% for Hard and APW classification.



Table 1. Grain yield (t/ha), protein (%), test weight (kg/hL) and screenings (%) of wheat varieties at Hart in 2015. Mean grain yield (% of trial average) of Hart wheat variety trials (2010-2015) and number of trials.

Quality	Variety	Grain yield t/ha	% of		Protein %	% of		Test Weight kg/hL	% of		Screenings %	% of		Mean yield 2010-2015	No. of trials
			site average	site average		site average	site average		site average	site average					
AH	Axe	3.81	89	12.0	113	79.1	98	1.8	78	104	6				
	Cobra	4.45	104	10.3	97	79.1	98	2.4	103	104	4				
	Cosmick	4.48	105	9.4	89	81.1	101	4.5	193	105	2				
	Emu Rock	4.29	100	10.8	101	80.5	100	3.4	147	108	5				
	Gladius	4.15	97	11.5	108	80.0	99	2.4	103	100	6				
	Grenade CL Plus	4.37	102	10.0	94	80.7	100	2.0	87	97	4				
	Hatchet CL Plus	2.19	51	16.8	158	77.6	96	1.3	54	79	3				
	AGT Katana	4.34	102	10.8	102	82.4	102	2.2	95	104	6				
	Kord CL Plus	4.16	97	10.4	98	80.2	100	4.4	189	96	5				
	Mace	4.27	100	10.6	100	80.4	100	1.4	58	109	6				
	Phantom	4.59	107	9.6	90	80.6	100	2.3	101	101	5				
	Scepter (RAC2182)	4.71	110	9.1	86	81.1	101	2.8	120	-	5				
	Scout	4.68	110	10.0	94	82.8	103	1.8	77	106	6				
	Shield	4.39	103	10.2	96	79.9	99	3.3	140	100	4				
Wallup	4.06	95	11.7	110	77.1	96	1.3	55	97	4					
<i>H1 receival standard</i>			<i>>13.0</i>		<i>>76.0</i>		<i><5.0</i>								
APW	Cuttass	4.45	104	9.4	89	81.5	101	2.2	96	-	5				
	Corack	4.07	95	10.4	98	80.8	100	1.8	77	107	5				
	Estoc	4.43	104	10.4	98	82.4	102	2.0	85	100	6				
	Trojan	4.84	113	9.8	92	81.1	101	2.1	91	108	3				
<i>APW/1 receival standard</i>			<i>>10.5</i>		<i>>76.0</i>		<i><5.0</i>								
Unclassified	LPB111727	4.53	106	10.2	96	81.1	101	2.0	84	-	5				
	LPB111728	4.47	105	9.7	92	80.7	100	1.6	69	-	5				
Site Average		4.27	100	10.6	100	80.5	100	2.3	100						
LSD (P≤0.001)		0.24		0.84		1.89		0.6							

- first included at Hart in 2015