

Comparison of wheat varieties

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Key Findings

- Phantom, Scepter, Cobra and Scout were the highest yielding commercially available AH varieties at Hart in 2016, yielding between 4.01 and 4.28 t/ha.
- Trojan and Cutlass were the highest yielding APW varieties at 4.6 t/ha.
- Test weight and screening levels across the trial averaged 81.2 kg/hL and 0.7%.

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	10 th May 2016		UAN (42:0) @ 95 L/ha, 4 th July
		Fungicides	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 were assessed for grain yield, protein, test weight and screening with a 2.0 mm screen.

Results and discussion

Wheat grain yields ranged from 3.24 t/ha for Axe up to 4.67 t/ha for Trojan (Table 1), with an average site yield of 3.87 t/ha. The highest yielding varieties were Trojan, Cutlass and Phantom, closely followed by Estoc, Scepter, Cobra and Scout, all yielding above 4.0 t/ha. Conditions throughout the growing season allowed later maturing varieties such as Trojan, Cutlass and Phantom, to grow for longer and achieve higher yields. Minor frost and hail damage occurred at the site during Spring. This should be taken into account when interpreting results. The long-term variety yield data shows that Trojan (111%) and Mace (107%) continue to perform well over a number of seasons (Table 1).

Wheat grain protein levels were generally low across the trial. No variety met the minimum protein level for Hard 1 or APW classification. Varieties that achieved protein levels of 10% or above were Axe, Arrow, Wallup, Emu Rock and Hatchet CL Plus.

Grain test weights across the trial averaged 81.2 kg/hL and all varieties exceeded 76 kg/hL, the minimum required for maximum grade (Table 1). Screening levels at the site averaged 0.7 % and all fell well 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 2016. Mean grain yield (% of trial average) of Hart wheat variety trials (2010-2016) and number of trials.

Quality	Variety	Grain yield		Protein		Test Weight		Screenings		Mean yield 2010-2016	No. of trials	
		t/ha	% of site average	%	% of site average	kg/hL	% of site average	%	% of site average			
AH	Arrow (LPB111728)	3.80	98	10.3	110	82.0	101	0.2	34	-	7	
	Axe	3.24	84	10.6	114	77.3	95	0.3	45	101	7	
	Cobra	4.06	105	8.8	95	80.5	99	0.6	86	104	5	
	Cosmick	3.92	101	8.4	90	81.9	101	1.0	137	104	3	
	Emu Rock	3.82	99	10.1	109	82.1	101	1.2	171	106	6	
	Gladius	3.82	99	9.6	103	80.6	99	0.7	94	100	7	
	Grenade CL Plus	3.74	97	8.9	96	80.7	99	0.5	78	97	5	
	Hatchet CL Plus	3.39	88	10.4	111	79.9	98	0.5	66	81	4	
	AGT Kalana	3.48	90	9.7	104	82.3	101	0.8	109	102	7	
	Kord CL Plus	3.47	90	9.5	102	80.7	99	1.3	192	95	6	
	Mace	3.65	94	9.1	98	79.3	98	0.5	74	107	7	
	Phantom	4.28	111	8.4	91	82.8	102	0.8	115	102	6	
	Scepter	4.09	106	8.9	95	81.4	100	0.8	110	-	7	
	Scout	4.01	104	8.6	92	83.4	103	0.9	133	105	7	
	Shield	3.81	98	9.5	102	79.9	98	1.2	177	99	5	
	Wallup	3.76	97	10.2	110	81.3	100	0.3	39	97	5	
	<i>H1 receival standard</i>				>13.0		>76		<5.0			
	APW	Corack	3.72	96	9.4	101	80.8	100	0.4	54	106	6
		Cutlass	4.60	119	8.5	91	81.2	100	0.6	80	-	7
		Estoc	4.17	108	9.3	100	83.6	103	0.8	108	101	7
Trojan		4.67	121	8.4	83	83.0	102	0.4	63	111	4	
<i>APW1 receival standard</i>				>10.5		>76		<5.0				
Unclassified	IGW6111	3.81	98	9.0	97	80.8	99	1.0	137	-		
Site Average		3.87	100	9.3	100	81.2	100	0.7	100			
LSD (P<0.01)		0.52		0.89		0.88		0.28				

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