

# Comparison of wheat varieties

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## Key Findings

- The highest AH yielding (1.56 – 1.67 t/ha) varieties were Vixen, Beckom, Scout, Scepter, Cosmick, Emu Rock, Devil and Rockstar.
- Trojan, Cutlass and Sheriff CL Plus were the highest yielding APW varieties averaging 1.48 t/ha.
- Grain test weight and screening levels across all varieties averaged 78.9 kg/hL and 7.0%.

## Why do the trial?

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

## How was it done?

<b>Plot size</b>	1.75 m x 10.0 m	<b>Fertiliser</b>	DAP (18:20) + Zn 2% + Impact @ 80 kg/ha
<b>Seeding date</b>	May 14, 2019		Easy N (42.5:0) @ 55 L/ha on Oct 7, 2019
<b>Location</b>	Hart, SA		

The trial was a randomised complete block design with three replicates and 21 wheat varieties. Fungicides and herbicides were applied as necessary to keep the canopy free of disease and weeds. All plots were assessed for grain yield, protein, test weight and screenings (with a 2.2 mm screen).

## Results and discussion

Wheat grain yields ranged from 1.27 – 1.67 t/ha across all varieties (Table 1). Under decile one rainfall there were still a range of varieties which performed well at Hart in 2019. In general, the season favoured shorter maturing varieties. The highest AH yielding varieties were Vixen, Beckom, Scout, Scepter, Cosmick, Emu Rock, Devil and Rockstar. A number of these varieties were also present in the top ten 2019 Mid-North National Variety Trials (NVT).

Trojan, Cutlass and Sheriff CL Plus were the highest yielding APW varieties at 1.53, 1.47 and 1.44 t/ha, respectively. Long-term yield data shows Scepter, Scout, Beckom and Trojan continue to perform well at Hart over a number of seasons (Table 2).

Wheat grain protein levels were low averaging 7.8%. The trial nitrogen budget included pre-seeding available soil nitrogen (30 kg N/ha) and fertiliser applications of 40 kg N/ha (seeding and in-season). Given the low season rainfall the nitrogen budget (70 kg N/ha) set the crop up for a 1.8 – 2.0 t/ha grain yield. However, the in-season nitrogen was applied late (early October) and would not have contributed to grain protein as the soil profile was dry and the site only received 4 mm for October.

Table 1. Grain yield (t/ha), protein (%), test weight (kg/hL) and screenings (%) of wheat varieties at Hart in 2019.

Quality	Variety	Grain yield t/ha	% of site average	Protein %	% of site average	Test Weight kg/hL	% of site average	Screenings %	% of site average
AH	Arrow	1.36	90	7.6	97	79.7	101	4.6	65
	Beckom	1.65	110	7.9	101	80.8	102	5.7	82
	Catapult (RAC2484)	1.46	97	7.8	100	80.6	102	4.4	63
	Cobra	1.49	99	8.0	102	79.2	100	6.6	95
	Cosmick	1.58	105	7.4	94	80.7	102	8.6	123
	Devil	1.56	104	7.8	100	78.2	99	6.7	96
	Emu Rock	1.57	104	8.0	102	77.3	98	6.7	96
	Grenade CL Plus	1.40	93	8.1	103	78.2	99	6.7	96
	Havoc	1.44	96	7.7	98	78.0	99	9.2	132
	Kord CL Plus	1.37	91	7.9	100	79.0	100	14.2	203
	Mace	1.43	95	7.7	98	77.0	98	6.7	96
	Rockstar (IGW4341)	1.56	104	7.4	94	77.7	98	6.3	90
	Scepter	1.59	106	7.7	98	79.9	101	8.4	121
	Scout	1.61	107	7.8	99	77.0	98	7.1	101
	Vixen	1.67	111	7.6	97	76.5	97	6.4	92
<i>H1 receival standard</i>				>13.0		>76		<5.0	
APW	Chief CL Plus	1.27	85	8.3	105	80.8	102	8.6	123
	Cutlass	1.47	98	8.3	106	81.5	103	5.9	85
	Sheriff CL Plus	1.44	96	7.8	99	79.4	101	4.2	61
	Trojan	1.53	102	8.1	104	81.6	104	4.5	65
<i>APW1 receival standard</i>				>10.5		>76.0		<5.0	
ASW	Razor CL Plus	1.64	109	7.3	94	73.0	93	9.0	128
<i>ASW1 receival standard</i>				NA		>76		<5.0	
Unclassified	LPB15-2485	1.47	98	8.4	107	80.1	102	5.9	84
<b>Site Average</b>		1.50	100	7.8	100	78.9	100	7.0	100
LSD (P≤0.05)		0.13		ns		2.52		1.5	

Grain test weights averaged 78.9 kg/hL across all wheat varieties. Razor CL Plus was the only variety under the minimum requirement of 76 kg/hL at 73 kg/hL. A large proportion of the varieties trialed contained screening levels higher than 5%, the maximum for Hard and APW classification.

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

Quality	Variety	% of trial average					Grain yield (t/ha)
		2015	2016	2017	2018	2019	2019
AH	Arrow	105	98	103	102	90	1.36
	Beckom			112	104	110	1.65
	Catapult (RAC2484)					97	1.46
	Cobra	104	105	100	96	99	1.49
	Cosmick	105	101	97	98	105	1.58
	Devil					104	1.56
	Emu Rock	100	99	98	104	104	1.57
	Grenade CLPlus	102	96	95	110	93	1.40
	Hatchet CLPlus	51	88	86	106		
	Havoc			97	85	96	1.44
	Kord CLPlus	97	90	97	100	91	1.37
	Mace	100	94	102	95	95	1.43
	Rockstar (IGW4341)					104	1.56
	Scepter	110	106	111	113	106	1.59
	Scout	110	103	107	107	107	1.61
Vixen					111	1.67	
APW	Corack	95	96	86	86		
	Chief CL Plus				87	85	1.27
	Cutlass	104	119	104	117	98	1.47
	DS Pascal			90	86		
	Estoc	104	108	96	100		
	Sheriff CL Plus					96	1.44
	Trojan	113	121	113	106	102	1.53
ASW	Razor CLPlus			103	104	109	1.64
Unclass	LPB15-2485					98	1.47
<b>Trial mean yield t/ha</b>		<b>4.27</b>	<b>3.87</b>	<b>3.83</b>	<b>2.13</b>	<b>1.50</b>	
Sowing date		6th May	10th May	8th May	14th May	15th May	
Apr-Oct rain (mm)		230	356	191	160	162	
Annual rain (mm)		353	485	331	224	189	

### Acknowledgements

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