

Comparison of durum varieties

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Key findings

- Durum yields ranged from 1.29 – 1.65 t/ha at Hart in 2021.
- Westcourt, DBA Spes, Bitalli and DBA-Aurora were the highest yielding durum varieties, yielding 1.65, 1.64, 1.55 and 1.53 t/ha, respectively.
- Grain protein levels were high (trial average 15%) and screenings were variable ranging from 2.2 – 15.9%.
- Test weights for all durum varieties trialed were high, averaging 79.5%, meeting DR1 receival standards.

Why do the trial?

To compare the performance of new durum varieties alongside current commercial standards.

How was it done?

Plot size	1.75 m x 10.0 m	Fertiliser	Seeding: DAP (18:20) Zn 1% + Impact @ 80 kg/ha
Seeding date	May 3, 2021		June 12: Easy N (42.5:0) @ 70 L/ha
Location	Hart, SA		August 20: Easy N (42.5:0) @ 70 L/ha
Harvest date	November 9, 2021		

The trial was a randomised complete block design with three replicates and five durum varieties. This trial was managed with the application of pesticides to ensure a weed, insect and disease-free canopy. All plots were assessed for grain yield (t/ha), protein (%), test weight (kg/hL) and screenings (%).

There were no new release durum varieties last season. The newest durum varieties trialed at Hart were Bitalli, Westcourt and DBA Artemis, released in 2019. These varieties have been evaluated at Hart across three seasons from 2019 – 2021.

Results and discussion

Grain yield

The highest yielding durum varieties at Hart this season were Westcourt, DBA Spes, Bitalli and DBA-Aurora, yielding 1.65, 1.64, 1.55 and 1.53 t/ha respectively (Table 1). DBA Artemis was low yielding at Hart in 2021, yielding 1.29 t/ha, however, it has performed well, within the top 10 durum varieties, across Mintaro and Turretfield NVT sites (National variety trials 2021). Long-term yield data shows that Westcourt, DBA Spes and DBA-Aurora continue to perform well across multiple seasons at Hart (Table 2).

Grain quality

In 2021, protein levels for all durum varieties were high, ranging from 14.5 – 15.7%, exceeding the minimum standards of 13% for DR1 receival standards (Table 1.). Test weights were similar with all varieties meeting minimum receival standards of 76kg/hL.

Screenings (%) for Westcourt, DBA Artemis, DBA-Aurora and DBA Spes were similar, however, only Westcourt and DBA Artemis made DR1 receival standards (< 5%). Bitalli had the highest level of

screenings at 15.9%. Westcourt has continued to perform well, meeting DR1 receival standards across all grain quality characteristics at Hart in 2021.

Table 1. Grain yield (t/ha), protein (%), test weight (kg/hL) and screenings (%) for durum varieties at Hart in 2021. Values shaded within each column show the highest performing varieties.

Variety	Grain yield t/ha	% of site average	Protein %	% of site average	Test weight kg/hL	% of site average	Screenings %
Westcourt	1.65 ^b	108	14.6 ^a	98	80.3	101	2.2 ^a
DBA Artemis	1.29 ^a	84	15.4 ^b	103	79.1	99	3.9 ^a
DBA Aurora	1.53 ^b	100	14.5 ^a	97	79.4	100	6.0 ^a
DBA Spes	1.64 ^b	107	15.7 ^b	105	79.5	100	6.8 ^a
Bitalli	1.55 ^b	102	14.6 ^a	97	79.1	99	15.9 ^b
<i>DR1 receival standards</i>			≥ 13.0		> 76		< 5%
Site Average	1.53	100	15.0	100	79.5	100	6.9
LSD (P≤0.05)	0.179		0.69		NS		5.03

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

Variety	% Trial average					Grain yield (t/ha)
	2017	2018	2019	2020	2021	2021
Bitalli			99	103	101	1.55
DBA-Aurora	100	102	103	106	100	1.53
DBA Artemis			95	79	84	1.29
DBA Spes		102	105	104	107	1.64
DBA Vittaroi		104	96	99		
Hyperno	96	95	95			
Saintly	100	90	97			
Westcourt			107	110	108	1.65
Trial average yield t/ha	4.08	4.24	2.31	2.63	1.53	
Sowing date	May 10	May 9	May 15	May 15	May 3	
Apr-Oct rain (mm)	356	191	160	162	232	
Annual rain (mm)	485	331	224	189	401	

Acknowledgements



The Hart Field-Site Group would like to acknowledge the generous support of our sponsors who provide funding that allows us to conduct this trial. Proceeds from Hart's ongoing commercial crop also support Hart's research and extension program.

We would like to thank Seednet and The University of Adelaide for providing seed to conduct this trial.

References

The National Variety Trials program (2021) <https://nvt.grdc.com.au>