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WA CROP  
TECHNOLOGY  
CENTRE (ALBANY)

# INDUSTRY INNOVATIONS 2024: PROVISIONAL HARVEST RESULTS – April Sown Wheat

2024 WA Albany Crop Technology Centre (HRZ Frankland River)

**Sown:** 28 April 2024

**Harvested:** 29 November 2024

**Rotation position:** 2023 Canola

**Soil type:** Forest gravels

**FAR code:** FAR WAA II W24-25-02

*The Germplasm Evaluation Network (GEN) is a FAR Australia 'Industry Innovations' initiative that tests crop variety performance across FAR Australia's national network of Crop Technology Centres. GEN sites test variety performance with and without fungicide. FAR Australia provides the control varieties and breeders enter their chosen lines for evaluation.*

## Key Points:

- *A drier season at the start and finish resulted in 372mm growing season rainfall (GSR) and grain yields that ranged from 4.16 – 5.21t/ha depending on variety and fungicide input.*
- *In general varieties with slower development during stem elongation were lower yielding, although Genie which was slower than Rockstar still performed well.*
- *Varieties with heads out but had not yet flowered on the 5 September (Rockstar GS55 & V15019-88 (milling spring wheat) GS57) were the highest yielding.*
- *Despite the presence of Stagonospora nodorum blotch (SNB) and yellow leaf spot (YLS) there was no significant grain yield increase from fungicide application, even in varieties with the higher levels of infection.*
- *The highest levels of SNB and YLS infection in untreated crops were recorded in Brighton, Mammoth, Stockade, and LRPB Vortex, and although fungicide significantly reduced infection, grain yields were not improved suggesting that sufficient green leaf was already present to achieve grain fill with the available soil moisture.*
- *The warmer drier grain fill period had the effect of increasing screenings particularly in the later maturing winter variety Mowhawk and the earlier flowering spring LRPB Vortex.*
- *Proteins in the trial averaged 11.1% with a range from 12.7% (Matador) down to 10.2% for the red grained winter wheat Triple 2. Screenings averaged 4.1% ranging from 2.4% (Mammoth) to 7.6% (LRPB Vortex). Test weights averaged 77.6 kg/hL.*

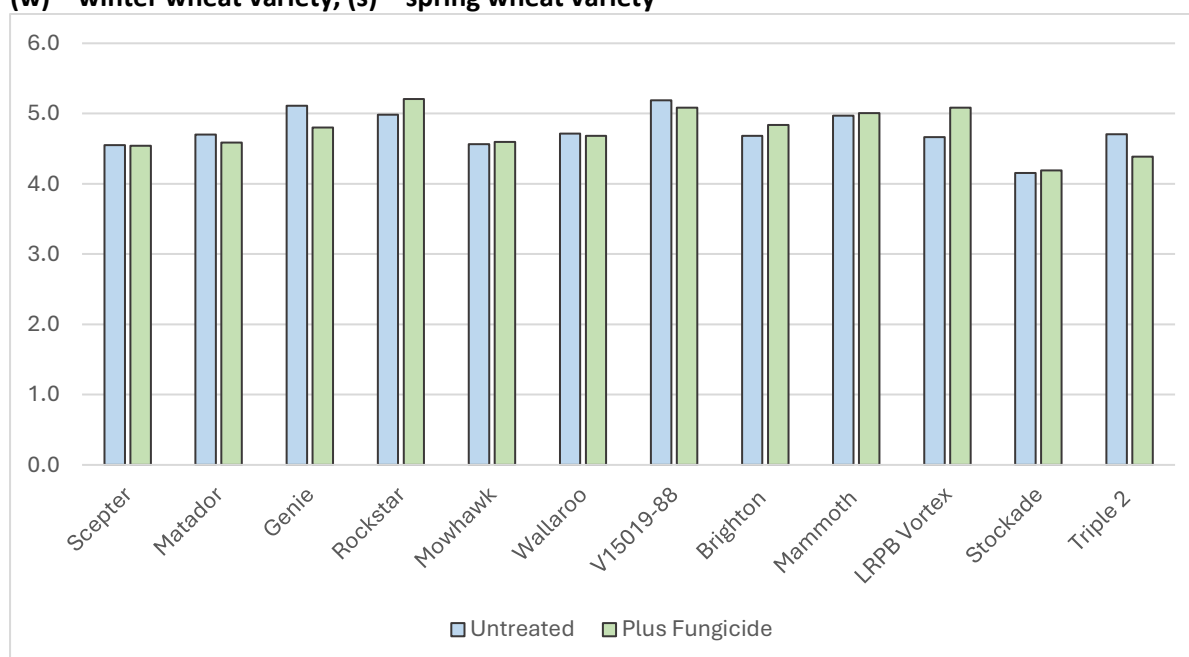
## Yield (t/ha) & quality data (% protein, test weight, % screenings)

There were significant differences in yield and quality due to variety ( $p < 0.001$ ), but fungicide application had no statistically significant effects except on screenings where there was a significant interaction between fungicide management and variety (Tables 1 – 3 & Figure 1).

**Table 1.** Influence of fungicide application on the grain yield (t/ha) of winter and spring wheat (varieties grown plus and minus fungicide) – April 28 sown (emerged mid-May).

Variety	Management Level		Mean	
	Untreated	Plus fungicide	Yield t/ha	Yield t/ha
Scepter (s)	4.55 -	4.54 -	4.55	d
Matador (s)	4.70 -	4.59 -	4.65	cd
Genie (s)	5.11 -	4.80 -	4.96	abc
Rockstar (s)	4.99 -	5.21 -	5.10	ab
Mowhawk (w)	4.57 -	4.60 -	4.58	d
Wallaroo (w)	4.72 -	4.68 -	4.70	cd
V15019-88 (s)	5.19 -	5.09 -	5.14	a
Brighton (V14051-172) (w)	4.68 -	4.84 -	4.76	bcd
Mammoth (IGW6755) (s)	4.97 -	5.01 -	4.99	abc
LRPB Vortex (s)	4.66 -	5.08 -	4.87	a-d
Stockade (s)	4.16 -	4.19 -	4.17	e
Triple 2 (AGFWH010222) (w)	4.71 -	4.39 -	4.55	d
<b>Mean</b>	<b>4.75 -</b>	<b>4.75 -</b>	<b>4.75</b>	
<b>LSD Variety p = 0.05</b>	0.37	<b>P val</b>	<0.001	
<b>LSD Management p = 0.05</b>	ns	<b>P val</b>	0.990	
<b>LSD Variety x Man. p = 0.05</b>	ns	<b>P val</b>	0.788	

(w) – winter wheat variety, (s) – spring wheat variety



**Figure 1.** Influence of variety and fungicide on grain yield (t/ha). All fungicide differences are not statistically significant – April 28 sown

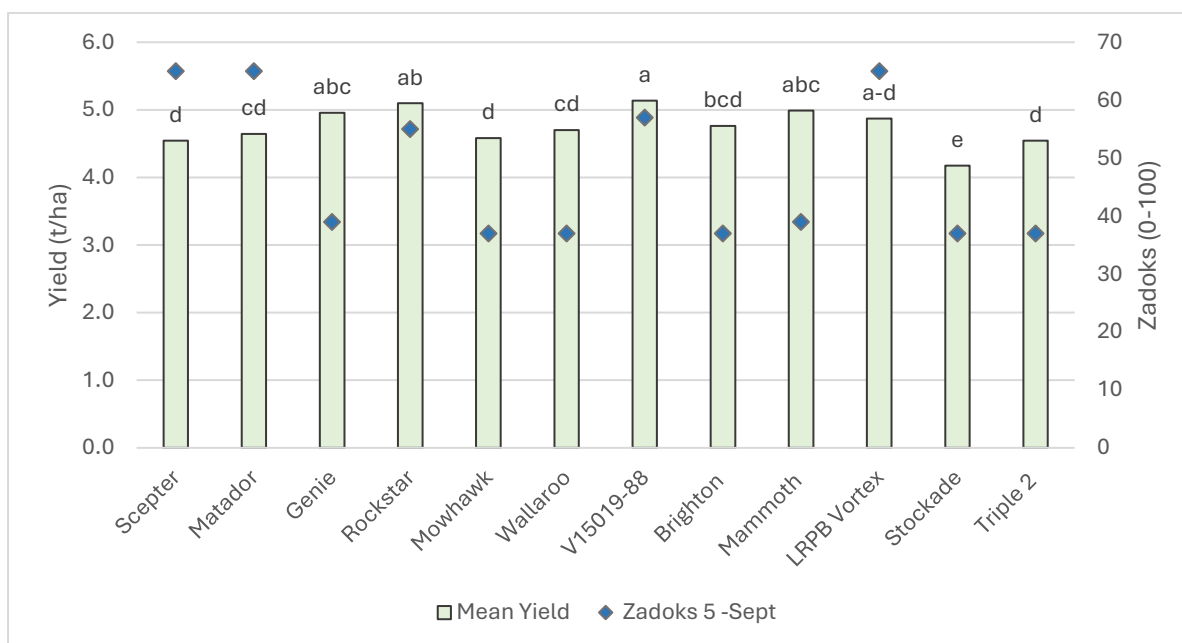
**Table 2.** Influence of variety and fungicide on the grain protein (%) and test weights (kg/hL) – November 29 harvest.

Management Level												
Variety	Untreated		Fungicide protection		Mean		Untreated		Fungicide protection		Mean	
	Protein %		Protein %		Protein %		Test weight kg/hL		Test weight kg/hL		Test weight kg/hL	
Scepter	12.4	-	12.1	-	12.3	a	73.0	-	78.4	-	75.7	-
Matador	12.9	-	12.4	-	12.7	a	77.2	-	78.7	-	77.9	-
Genie	10.6	-	10.4	-	10.5	de	78.9	-	80.6	-	79.8	-
Rockstar	11.2	-	11.0	-	11.1	bc	77.7	-	78.6	-	78.1	-
Mowhawk	10.6	-	10.7	-	10.7	cd	73.4	-	77.1	-	75.3	-
Wallaroo	10.9	-	10.7	-	10.8	cd	78.3	-	78.8	-	78.5	-
V15019-88	10.7	-	11.0	-	10.8	cd	76.5	-	77.8	-	77.2	-
Brighton	10.5	-	10.7	-	10.6	de	79.0	-	79.2	-	79.1	-
Mammoth	11.6	-	11.0	-	11.3	b	75.7	-	77.7	-	76.7	-
LRPB Vortex	11.4	-	11.2	-	11.3	b	76.7	-	78.6	-	77.7	-
Stockade	10.9	-	10.9	-	10.9	bcd	76.2	-	77.2	-	76.7	-
Triple 2	10.5	-	9.9	-	10.2	e	78.1	-	78.3	-	78.2	-
Mean	11.2	-	11.0	-	11.1		76.7	-	78.4	-	77.6	
Variety	LSD p = 0.05		0.7	P val	<0.001		LSD p = 0.05		ns	P val	0.522	
Management	LSD p = 0.05		ns	P val	0.224		LSD p = 0.05		ns	P val	0.177	
Var. x Man.	LSD p = 0.05		ns	P val	0.478		LSD p = 0.05		ns	P val	0.538	

**Table 3.** Influence of variety and fungicide on the screenings (% < 2.0 mm) and lodging (0 – 500 scale) – November 29 harvest.

There was little to no lodging in the trial, with small but significant differences in crop leaning (Table 3).

Management Level												
Variety	Untreated		Fungicide protection		Mean		Untreated		Fungicide protection		Mean	
	Screenings %		Screenings %		Screenings %		Lodging (0-500)		Lodging (0-500)		Lodging (0-500)	
Scepter	5.2	bc	3.6	d-i	4.4		18.8	-	17.5	-	18.1	a
Matador	3.8	c-h	4.8	bcd	4.3		16.3	-	12.5	-	14.4	a
Genie	4.4	b-e	3.9	c-h	4.1		7.5	-	0.0	-	3.8	bcd
Rockstar	2.9	f-j	2.9	f-j	2.9		5.0	-	2.5	-	3.8	bcd
Mowhawk	5.1	bc	5.6	b	5.3		0.0	-	0.0	-	0.0	d
Wallaroo	2.6	hij	2.3	ij	2.5		5.0	-	0.0	-	2.5	cd
V15019-88	4.3	b-e	4.2	c-g	4.2		13.8	-	2.5	-	8.1	b
Brighton	3.4	e-i	3.7	d-h	3.6		3.8	-	7.5	-	5.6	bc
Mammoth	3.2	e-i	1.6	j	2.4		7.5	-	0.0	-	3.8	bcd
LRPB Vortex	7.1	a	8.1	a	7.6		16.3	-	13.8	-	15.0	a
Stockade	3.4	e-i	4.2	c-f	3.8		0.0	-	0.0	-	0.0	d
Triple 2	2.8	g-j	4.3	b-e	3.6		0.0	-	0.0	-	0.0	d
Mean	4.0	-	4.1	-	4.1		7.8	a	4.7	b	6.3	
Variety	LSD p = 0.05		1.0	P val	<0.001		LSD p = 0.05		5.4	P val	<0.001	
Management	LSD p = 0.05		ns	P val	0.732		LSD p = 0.05		3.0	P val	0.049	
Var. x Man.	LSD p = 0.05		1.3	P val	0.038		LSD p = 0.05		ns	P val	0.309	



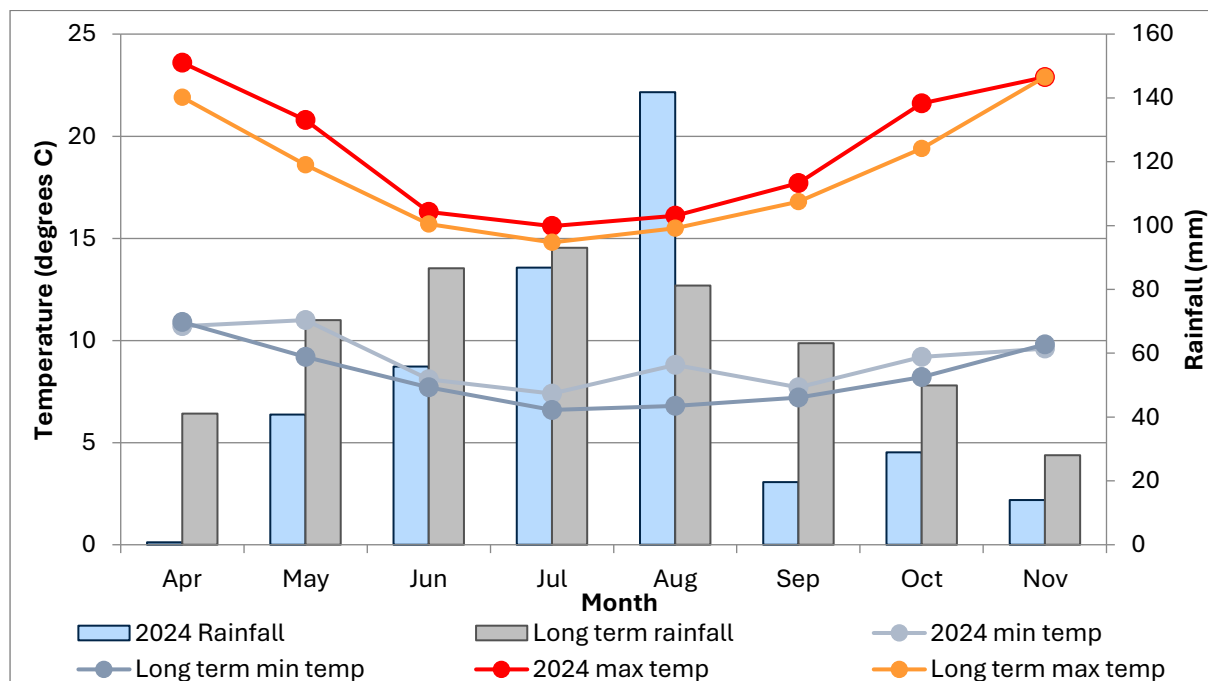
**Figure 2.** Influence of variety phenology (Zadoks Growth Stage) on grain yield (t/ha, mean of treated and untreated) – harvested November 29 (Yield, Cultivar LSD ( $p < 0.05$ ) = 0.37,  $p$  value =  $< 0.001$ )

**Table 4.** Influence of fungicide and variety on plot disease infection levels (%) of yellow leaf spot and *Stagonospora nodorum* blotch – assessed September 15.

Variety	Management Level											
	Untreated		Fungicide protection		Mean		Untreated		Fungicide protection		Mean	
	YLS %		YLS %		YLS %		SNB %		SNB %		SNB %	
Scepter	3.3	c-f	1.4	def	<b>2.3</b>		0.2	c	0.1	c	<b>0.1</b>	
Matador	4.5	cd	2.0	def	<b>3.3</b>		0.2	c	0.1	c	<b>0.1</b>	
Genie	4.0	cde	0.9	def	<b>2.4</b>		1.0	c	0.1	c	<b>0.5</b>	
Rockstar	3.3	c-f	0.3	ef	<b>1.8</b>		0.3	c	0.2	c	<b>0.2</b>	
Mowhawk	0.1	f	0.1	f	<b>0.1</b>		0.0	c	0.1	c	<b>0.0</b>	
Wallaroo	0.4	ef	0.2	ef	<b>0.3</b>		0.3	c	0.1	c	<b>0.2</b>	
V15019-88	3.0	c-f	1.8	def	<b>2.4</b>		0.2	c	0.1	c	<b>0.1</b>	
Brighton	12.5	a	2.3	c-f	<b>7.4</b>		7.5	a	1.1	c	<b>4.3</b>	
Mammoth	15.0	a	3.5	c-f	<b>9.3</b>		4.0	b	0.7	c	<b>2.3</b>	
LRPB Vortex	6.0	bc	3.8	c-f	<b>4.9</b>		0.8	c	0.0	c	<b>0.4</b>	
Stockade	8.5	b	0.8	def	<b>4.6</b>		5.0	b	0.7	c	<b>2.8</b>	
Triple 2	0.0	f	0.0	f	<b>0.0</b>		0.0	c	0.0	c	<b>0.0</b>	
<b>Mean</b>	<b>5.0</b>		<b>1.4</b>		<b>3.2</b>		<b>1.6</b>		<b>0.3</b>		<b>0.9</b>	
<b>Variety</b>	<b>LSD p = 0.05</b>		2.7	<b>P val</b>	$< 0.001$		<b>LSD p = 0.05</b>		1.0	<b>P val</b>	$< 0.001$	
<b>Management</b>	<b>LSD p = 0.05</b>		0.9	<b>P val</b>	0.001		<b>LSD p = 0.05</b>		1.1	<b>P val</b>	0.028	
<b>Var. x Man.</b>	<b>LSD p = 0.05</b>		3.9	<b>P val</b>	$< 0.001$		<b>LSD p = 0.05</b>		1.5	<b>P val</b>	$< 0.001$	

**Table 5.** Trial input and management details (kg, g, mL/ha, L/ha).

<b>Sowing date:</b>	<b>28 April</b>		
<b>Harvest date:</b>	<b>29 November</b>		
<b>Seed rate:</b>	180 seeds/m <sup>2</sup>		
<b>Basal fertiliser:</b>	28 April	139 kg/ha MAP/MOP/MnSO <sub>4</sub> (66/29/5) blend	
<b>Pre-em herbicide:</b>	28 April	TriflurX 2.00 L/ha Overwatch 1.25 L/ha	
<b>Post-em herbicide:</b>	5 July	Zinc sulphate mono 35% 0.5 kg/ha Magnesium sulphate 20 kg/ha LVE MCPA 570 0.40 L/ha Jaguar 0.80 L/ha	
<b>Insecticide:</b>	31 July	Trojan 10 mL/ha	
<b>Nitrogen:</b>	24 June	220kg/ha Urea (40%)/MOP (60%) blend (40.5 kg N/ha)	
	20 July	160 kg urea/ha (73.6 kg N/ha)	
	4 August	50 kg/ha urea (23 kg N/ha)	
<b>Fungicide:</b>		<b>Untreated</b>	<b>Fungicide Protection</b>
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.50 L/ha



**Figure 3.** 2024 growing season rainfall and long-term rainfall recorded at Frankland (1923-2024). 2024 min and max temperatures, and long-term temperatures recorded at Rocky Gully (1995-2024). Growing season rainfall April to October= 372 mm.

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