GERMPLASM

evaluation network 2023

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FAR AUSTRALIA

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FAR Australia
Crop Technology Centres (CTCs))

SOWING THE SEED FOR A BRIGHTER FUTURE

An Industry Innovations (II) 2025 initiative

Industry Innovations
leading the way to a brighter grains industry

Contents

OBJECTIVES

To evaluate the performance of wheat and barley lines at five FAR Crop Technology Centres, Gnarwarre VIC, Millicent SA, Wallendbeen NSW, Frankland River WA & Hagley Tasmania.

In these GEN trials FAR Australia provides control varieties and the breeders enter their material under their own variety names, codes or under a FAR code. We would like to acknowledge the funding support of AGF, AGT, GxE Crop Research, InterGrain, RAGT & Seednet with the entries made into the 2023 GEN trials network.

This final report covers canopy assessment data, disease assessment data, yield and quality versus FAR control cultivars. The report also carries details of fungicide program applied and the dates when products were applied along with nutrition details.

The following organisations contributed entries to the 2023 Germplasm Evaluation Network (GEN)

Seednet

AGF seeds
Australian Grain and Forage

AGT

RAGT

INTERGRAIN

GxE
Crop Research

Gnarwarre, VIC

VIC Wheat TOS 1 (FAR VIC II W23-06-01)

Sown: 30 April 2023
Harvested: 12 January 2024
Soil Type: Grey Clay Loam
Previous Crop: Faba Beans

Cultivar: Various
FAR Code: FAR VIC II W23-06-01
GSR (Apr-Nov): 375mm

Key Points:

- *There was a significant yield interaction (<0.001) between variety and fungicide application, with the red grained winter wheats showing good disease resistance to stripe rust and little yield response to fungicide.*
- *In contrast, the milling wheats and RGT Accroc were badly affected with disease, again principally stripe rust but also Septoria tritici blotch (STB).*
- *The highest yielding cultivars were the red winter wheats RW 71608 and AGFWH010222 at 6.76t/ha and 6.72t/ha respectively, but they were not significantly better than Anapurna, FAR WW2, RGT Waugh and AGTW005.*
- *With rainfall well below the long-term average in the months between July and October, Septoria tritici blotch (STB) infection did not develop on the upper leaves of the canopy.*
- *With this lower rainfall, winter wheats with slightly quicker development (RW 71608 and AGFWH010222) tended to be higher yielding.*
- *There were significant grain quality interactions with quality parameters of individual varieties being differentially affected by the application of fungicide.*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of wheat cultivars plus and minus fungicide.

	Management Level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Yield t/ha**		**Yield t/ha**		**Yield t/ha**	
Anapurna (w)	5.55	ef	6.17	a-e	**5.86**	
Rockstar (s)	2.40	i	5.65	def	**4.02**	
RGT Accroc (w)	4.21	g	5.91	b-f	**5.06**	
Genie (IGW6754) (s)	3.16	h	5.89	b-f	**4.52**	
IGW6755 (s)	4.42	g	5.77	c-f	**5.10**	
Willaura (s)	3.04	h	5.32	f	**4.18**	
AGTW005 (w)	6.45	ab	6.26	a-d	**6.35**	
RGT Waugh (w)	5.81	c-f	6.47	ab	**6.14**	
RW 71608 (w)	6.17	a-e	6.76	a	**6.46**	
AGFWH010222 (w)	6.26	a-d	6.72	a	**6.49**	
FAR WW2 (w)	6.19	a-d	6.33	abc	**6.26**	
Mean	**4.88**		**6.11**		**5.49**	
LSD Cultivar p = 0.05	0.44			**P val**	<0.001	
LSD Management p = 0.05	0.60			**P val**	0.007	
LSD Cultivar x Man. p = 0.05	0.62			**P val**	<0.001	

Note: w = Winter Wheat, s = Spring Wheat

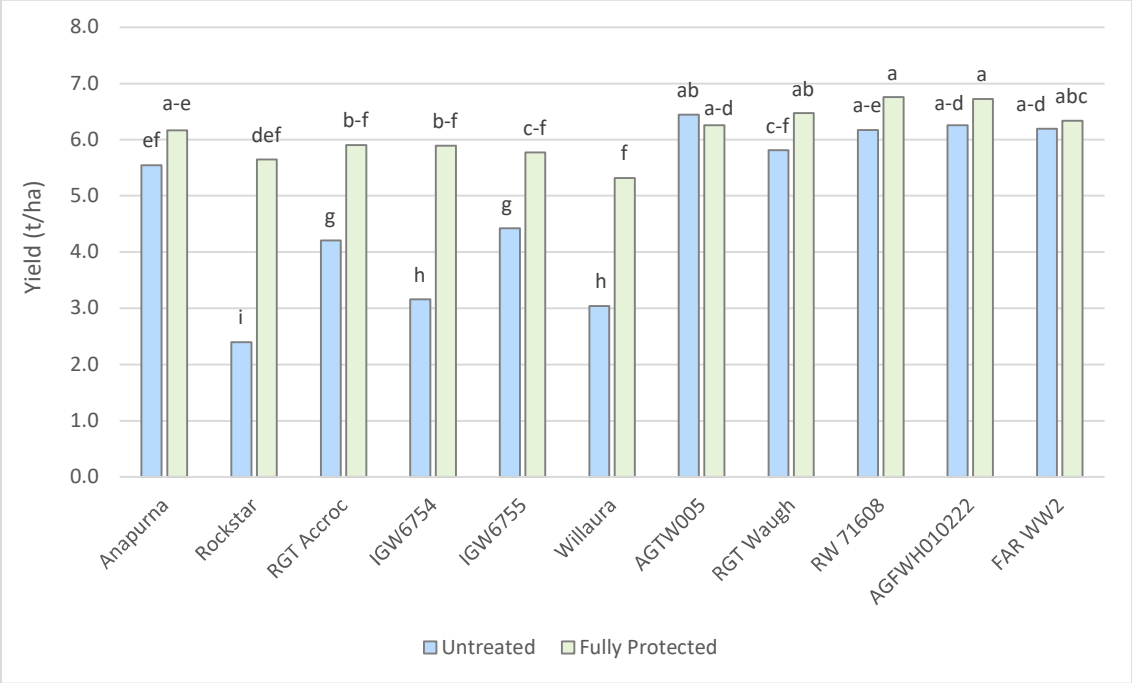

Figure 1. Influence of cultivar and fungicide on grain yield (t/ha, error bars +/- LSD 0.05).

Table 2. Influence of fungicide on the grain quality (% protein, test weight and screenings) of wheat cultivars plus and minus fungicide.

		Grain quality assessments					
	Cultivar	**Protein (%)**		**Test Weight (kg/hL)**		**Screenings (%)**	
1.	Anapurna (w)	12.3		75.6		3.6	
2.	Rockstar (s)	10.8		68.2		3.1	
3.	RGT Accroc (w)	11.2		75.7		2.2	
4.	Genie (IGW6754) (s)	11.0		73.7		3.7	
5.	IGW6755 (s)	11.3		73.7		2.3	
6.	Willaura (s)	10.8		67.8		4.2	
7.	AGTW005 (w)	12.1		75.1		2.1	
8.	RGT Waugh (w)	12.5		71.6		2.7	
9.	RW 71608 (w)	11.6		73.1		2.9	
10.	AGFWH010222 (w)	11.2		76.0		3.1	
11.	FAR WW2 (w)	11.7		74.6		2.6	
	LSD = 0.05	0.3		0.6		0.4	
	Cultivar p-Value	<0.001		<0.001		<0.001	
1.	Untreated	11.4	-	72.3		3.4	
2.	Full Protection	11.6	-	74.0		2.6	
	LSD = 0.05	ns		0.4		0.2	
	Disease Management p-Value	0.095		0.001		<0.001	
	Cultivar x Disease Management	**Protein (%)**		**Test Weight (kg/hL)**		**Screenings (%)**	
	No Fungicide						
1.	Anapurna (w)	12.2	abc	75.0	cde	3.9	bc
2.	Rockstar (s)	10.9	j-m	64.5	k	4.1	b
3.	RGT Accroc (w)	10.9	klm	75.0	cde	2.4	efg
4.	Genie (IGW6754) (s)	10.7	klm	71.8	h	4.5	b
5.	IGW6755 (s)	11.2	g-k	73.3	fg	2.4	efg
6.	Willaura (s)	11.0	h-l	66.3	j	5.6	a
7.	AGTW005 (w)	11.9	bcd	74.9	cde	2.1	fg
8.	RGT Waugh (w)	12.6	a	71.5	h	2.8	de
9.	RW 71608 (w)	11.6	d-g	73.0	g	3.3	d
10.	AGFWH010222 (w)	11.0	i-m	75.9	ab	3.2	d
11.	FAR WW2 (w)	11.5	d-g	74.4	de	2.6	ef
	Full Protection						
1.	Anapurna (w)	12.3	ab	76.1	ab	3.4	cd
2.	Rockstar (s)	10.6	lm	71.8	h	2.1	fg
3.	RGT Accroc (w)	11.5	d-h	76.4	a	2.0	g
4.	Genie (IGW6754) (s)	11.3	f-j	75.6	abc	2.8	de
5.	IGW6755 (s)	11.4	e-i	74.2	ef	2.1	fg
6.	Willaura (s)	10.5	m	69.2	i	2.9	de
7.	AGTW005 (w)	12.3	ab	75.3	bcd	2.2	fg
8.	RGT Waugh (w)	12.4	a	71.8	h	2.6	efg
9.	RW 71608 (w)	11.7	def	73.3	fg	2.5	efg
10.	AGFWH010222 (w)	11.5	d-h	76.1	ab	2.9	de
11.	FAR WW2 (w)	11.8	cde	74.7	de	2.5	efg
	LSD = 0.05	0.46		0.9		0.6	
	Cultivar x Disease Mang. p-Value	0.011		<0.001		<0.001	

Disease assessment data

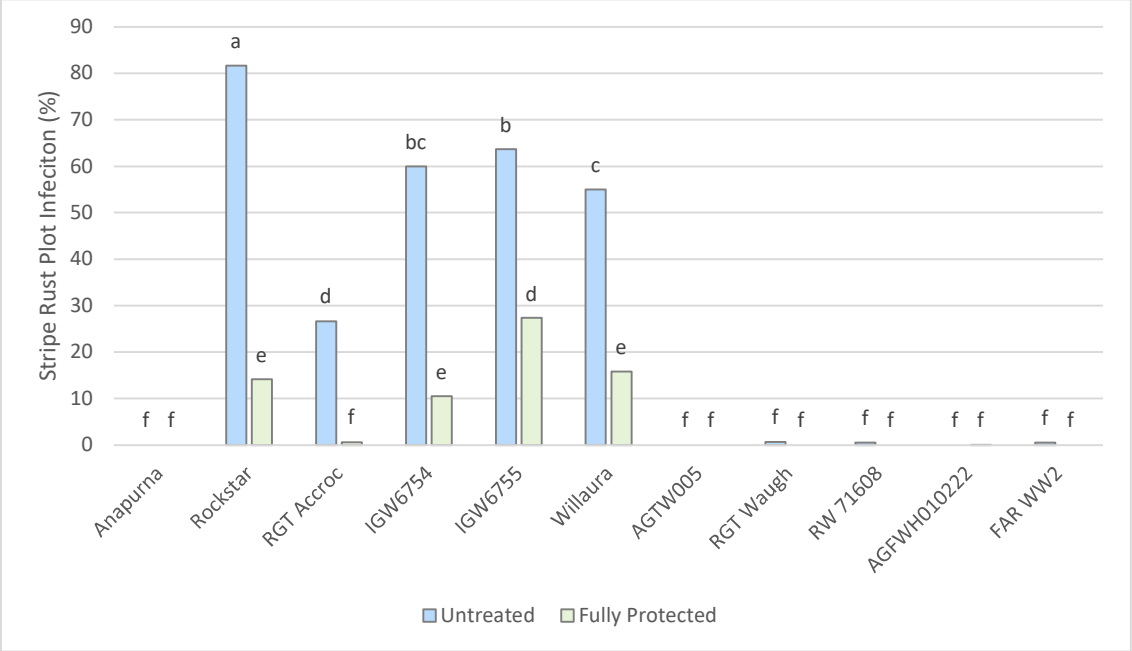

Figure 2. Influence of cultivar and fungicide on stripe rust plot infection (p = <0.001, LSD = 8.5), assessed on 27 September.

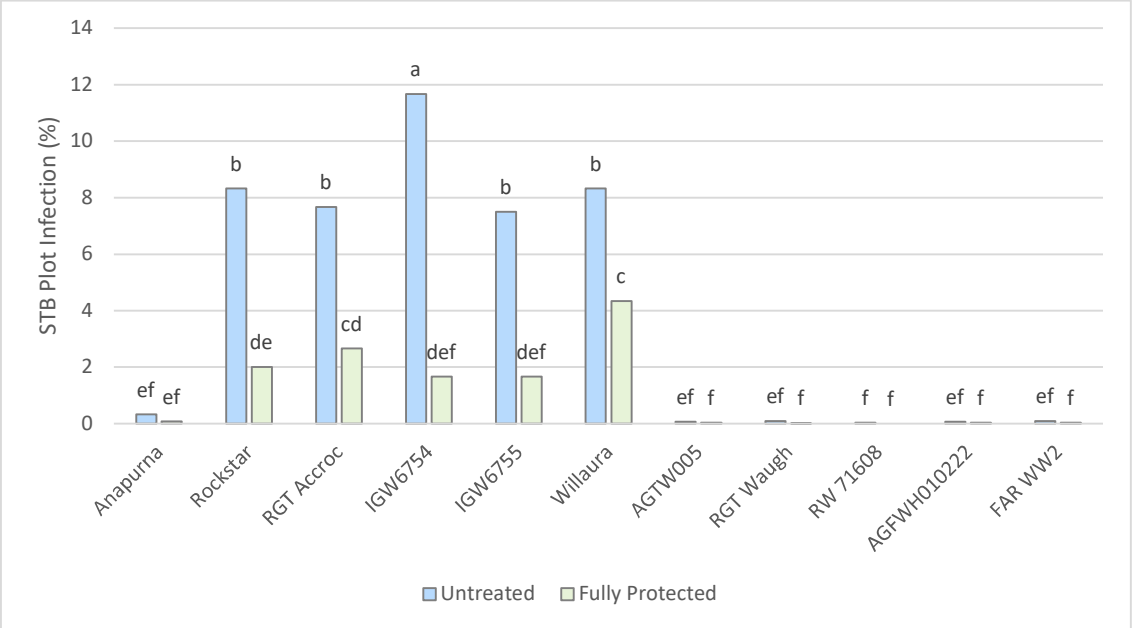

Figure 3. Influence of cultivar and fungicide on Septoria tritici blotch (STB) plot infection (p = <0.001, LSD = 1.9), assessed on 27 September.

Lodging

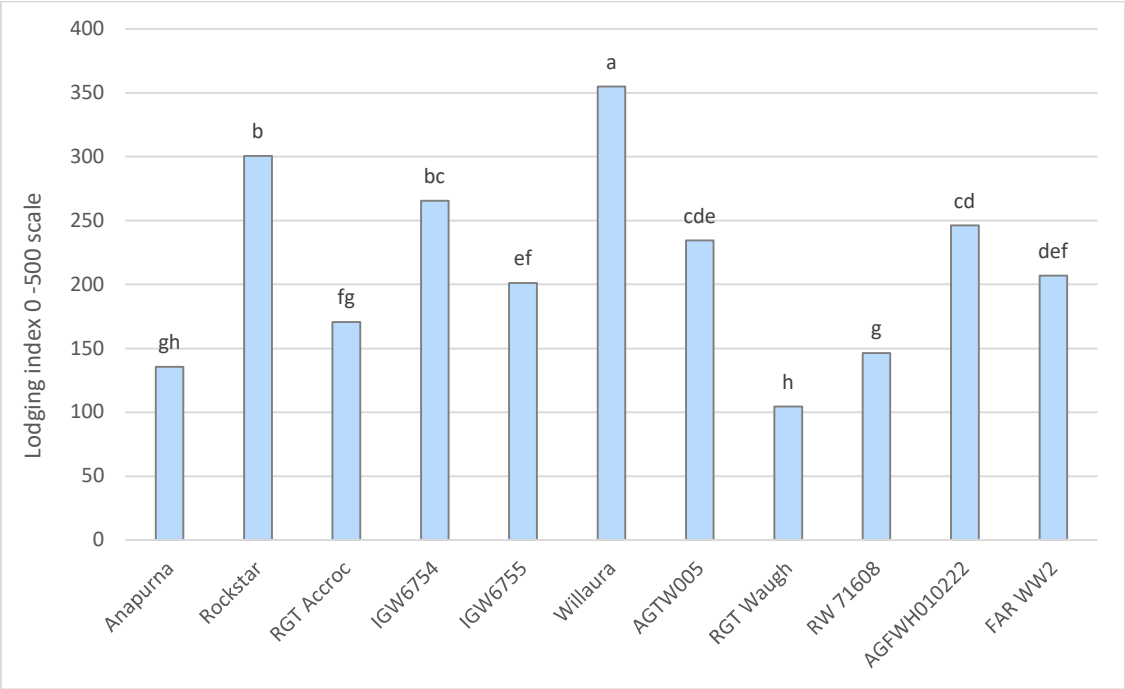

Figure 4. Influence of cultivar on lodging at harvest, 12 January (p = <0.001, LSD = 41.8).

Development

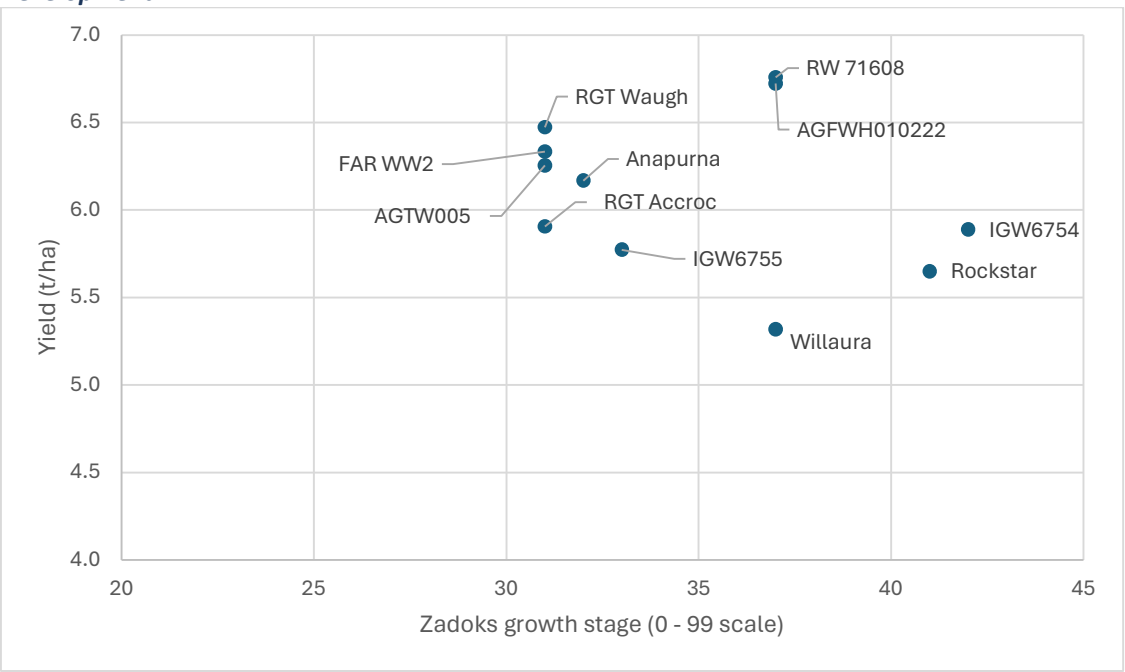

Figure 5. Different cultivar development stages during stem elongation (Zadoks growth stage reference) - assessed (28 August) compared with grain yield (t/ha).

Trial inputs

Table 3. Trial input and management details (kg, g, ml/ha).

Sowing date:		**30 April**	
Harvest date:		**12 January**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	11 May	100 kg MAP	
Pre-em herbicide:	9 May	Treflan 2 L	
		Overwatch 1.25 L/ha	
		Paraquat 2.4 L/ha	
Post-em herbicide:	2 June	Mateno Complete 0.75 L/ha	
		LVE MCPA 570 0.45 L/ha	
		Lontrel Advanced 0.1 L/ha	
Nitrogen:	6 July	50 kg N/ha	
	28 Aug	100 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.50 L/ha
	GS59-61	----	Opus 0.50 L/ha

VIC Wheat TOS 2 (FAR VIC II W23-07-02)

Sown: 23 May 2023
Harvested: 16 January 2024
Soil Type: Grey Clay Loam
Previous Crop: Faba Beans

Cultivar: Various
FAR Code: FAR VIC II W23-07-02
GSR (Apr-Nov): 375mm

Key Points:

- *There was a significant yield interaction (<0.001) between variety and fungicide application, with the stripe rust susceptible cultivars showing larger yield responses to fungicide.*
- *European winter feed wheats Anapurna and AGFWH010222 were the only varieties not to give a statistically significant response to fungicide application (based on three foliar fungicide applications).*
- *Stripe rust was the principal disease conferring effects on yield and grain quality with Rockstar affected to the greatest extent.*
- *The shorter season phenology of AGFWH010222 that suited the drier spring conditions resulted in this variety being one of the highest yielding wheats in both 30 April and 23 May sowings.*
- *With fungicide, Rockstar, AGFWH010222, V15019-088, IGW6755 were significantly higher yielding than all other varieties except V14035-125.*
- *The longer season winter wheat Anapurna was not suited to this later May sowing date.*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of wheat cultivars plus and minus fungicide.

		Management Level					
		Untreated		Full Protection		Mean	
Cultivar	**Zadoks (11 Sept)**	**Yield t/ha**		**Yield t/ha**		**Yield t/ha**	
Anapurna (w)	30	5.10	f	5.23	ef	**5.16**	**d**
Rockstar (s)	37	2.77	k	6.06	ab	**4.41**	**fg**
RGT Accroc (w)	30	4.15	ij	5.58	cd	**4.86**	**e**
Genie (IGW6754) (s)	37	4.05	j	5.57	cd	**4.81**	**e**
IGW6755 (s)	32	4.41	hi	5.88	b	**5.15**	**d**
Sunmaster (s)	37	3.99	j	4.70	g	**4.35**	**g**
V14035-125 (s)	37	5.14	ef	5.84	bc	**5.49**	**c**
V15019-088 (s)	37-39	5.40	de	6.10	ab	**5.75**	**b**
AGFWH010222 (w)	33	6.00	b	6.30	a	**6.15**	**a**
FAR SW1 (s)	30	4.43	gh	4.67	gh	**4.55**	**f**
	Mean	**4.54**	**b**	**5.59**	**a**	**5.07**	
	LSD Cultivar p = 0.05	0.20		**P val**		<0.001	
	LSD Management p = 0.05	0.19		**P val**		<0.001	
	LSD Cultivar x Man. p = 0.05	0.29		**P val**		<0.001	

Note: w = Winter Wheat, s = Spring Wheat

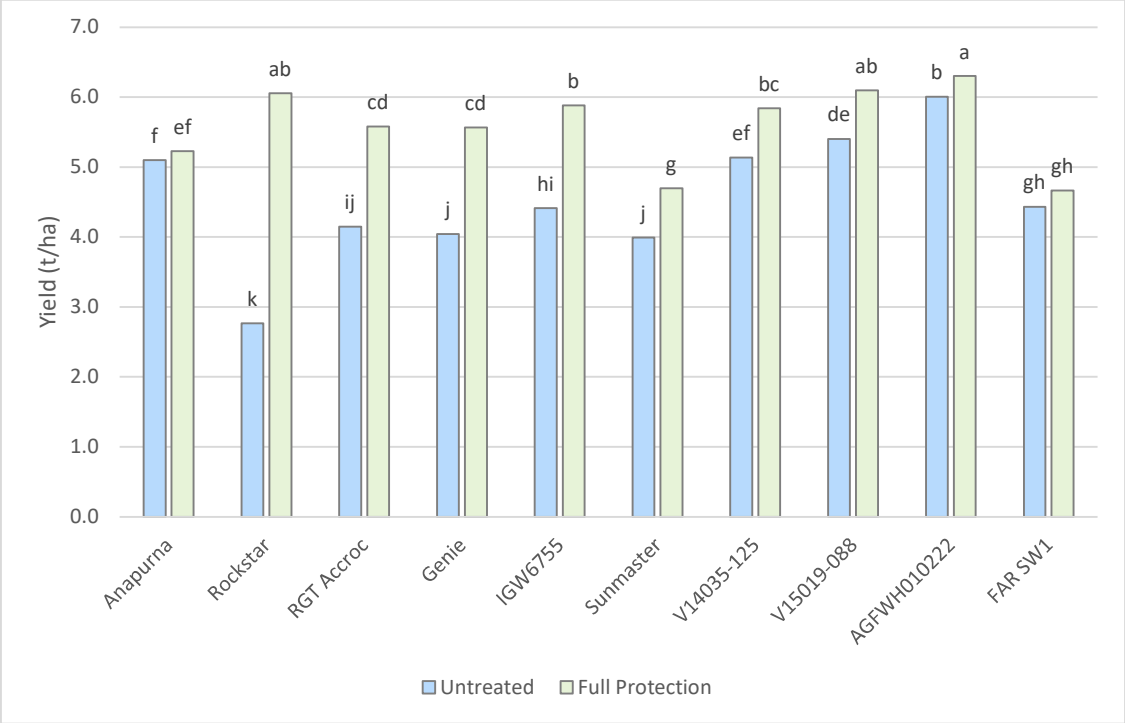

Figure 1. Influence of cultivar and fungicide on grain yield (t/ha) – harvested 16 January.

Table 2. Influence of fungicide on the grain quality (% protein, test weight and screenings) of wheat cultivars plus and minus fungicide.

		Grain quality assessments		
	Cultivar	**Protein (%)**	**Test Weight (kg/hL)**	**Screenings (%)**
1.	Anapurna (w)	11.6	74.5	4.9
2.	Rockstar (s)	10.5	68.7	3.1
3.	RGT Accroc (w)	10.6	75.1	2.0
4.	Genie (IGW6754) (s)	10.5	74.4	3.4
5.	IGW6755 (s)	10.8	72.7	2.7
6.	Sunmaster (s)	10.9	70.1	2.0
7.	V14035-125 (s)	10.7	70.7	1.7
8.	V15019-088 (s)	10.0	73.5	1.9
9.	AGFWH010222 (w)	10.3	75.5	3.4
10.	FAR SW1 (s)	13.6	78.6	1.7
	LSD = 0.05	0.2	0.8	0.4
	Cultivar p-Value	<0.001	<0.001	<0.001
1.	Untreated	10.9 -	73.0 -	2.9 -
2.	Full Protection	11.0 -	73.8 -	2.4 -
	LSD = 0.05	ns	ns	ns
	Disease Management p-Value	0.081	0.077	0.071
	Cultivar x Disease Management	**Protein (%)**	**Test Weight (kg/hL)**	**Screenings (%)**
	Untreated			
1.	Anapurna (w)	11.5 b	74.5 b-e	4.9 a
2.	Rockstar (s)	10.8 de	66.8 i	4.1 b
3.	RGT Accroc (w)	10.4 fg	74.9 bc	2.1 fg
4.	Genie (IGW6754) (s)	10.1 ij	74.0 c-f	3.9 bc
5.	IGW6755 (s)	10.7 ef	71.8 g	3.2 de
6.	Sunmaster (s)	10.7 e	70.4 h	2.2 f
7.	V14035-125 (s)	10.8 de	70.5 h	1.8 fg
8.	V15019-088 (s)	9.9 j	73.3 f	2.0 fg
9.	AGFWH010222 (w)	10.2 hij	75.4 b	3.6 bcd
10.	FAR SW1 (s)	13.6 a	78.5 a	1.8 fg
	Full Protection			
1.	Anapurna (w)	11.7 b	74.5 b-e	5.0 a
2.	Rockstar (s)	10.2 ghi	70.7 h	2.1 fg
3.	RGT Accroc (w)	10.7 de	75.2 b	1.8 fg
4.	Genie (IGW6754) (s)	10.9 cde	74.8 bcd	2.9 e
5.	IGW6755 (s)	11.0 cd	73.6 ef	2.1 fg
6.	Sunmaster (s)	11.1 c	69.9 h	1.9 fg
7.	V14035-125 (s)	10.7 e	70.9 gh	1.6 fg
8.	V15019-088 (s)	10.1 ij	73.8 def	1.8 fg
9.	AGFWH010222 (w)	10.4 fgh	75.5 b	3.3 cde
10.	FAR SW1 (s)	13.5 a	78.7 a	1.5 g
	LSD = 0.05	0.3	1.1	0.6
	Cultivar x Disease Mang. p-Value	<0.001	<0.001	<0.001

Disease assessment data

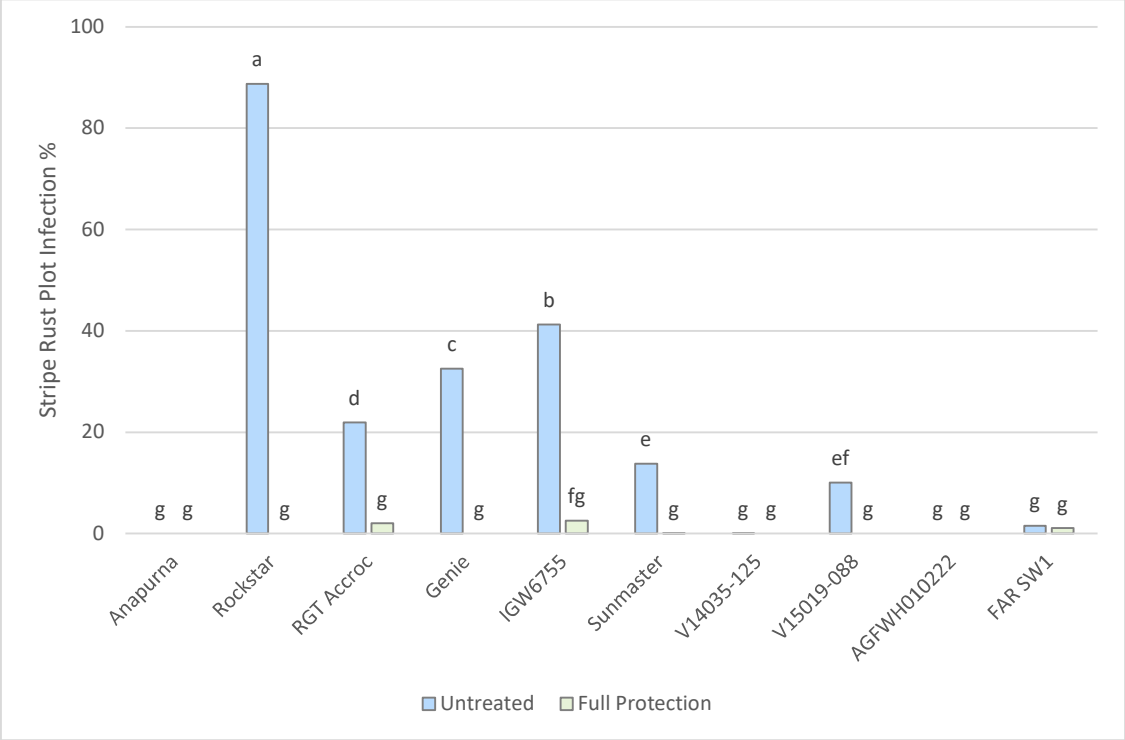

Figure 2. Influence of cultivar and fungicide on stripe rust plot infection (p = <0.001, LSD = 8.5), assessed on 1 October.

Lodging

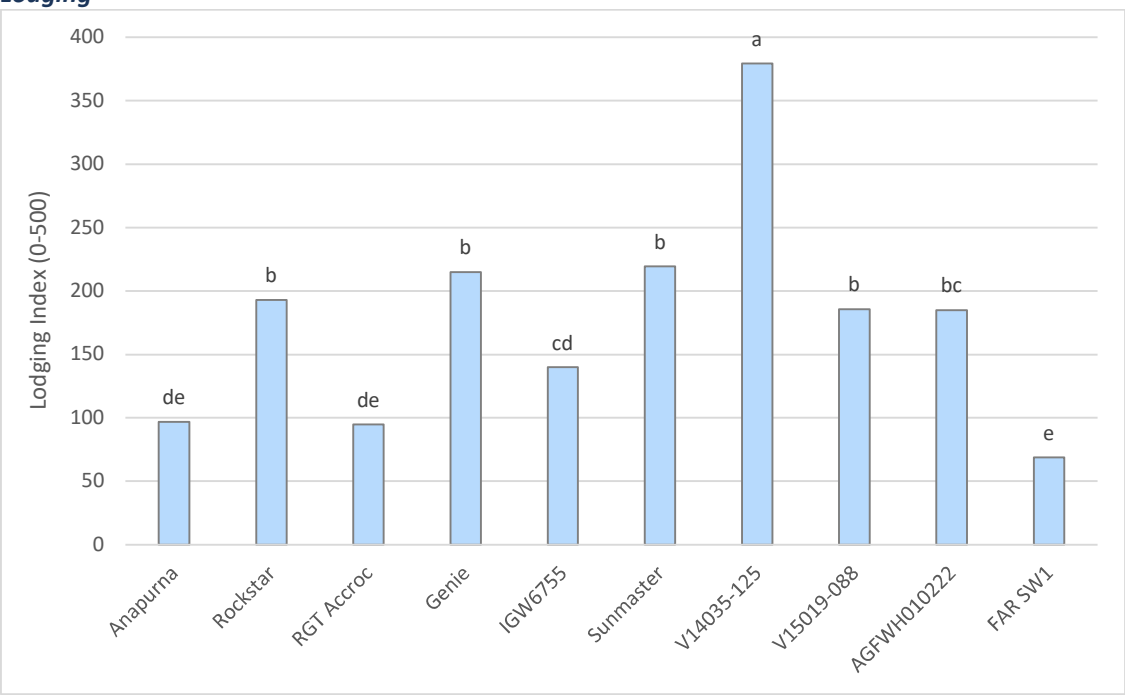

Figure 3. Influence of cultivar on lodging at harvest - 16 January.

Trial inputs

Table 3. Trial input and management details (kg, g, L/ha).

Sowing date:		**23 May**	
Harvest date:		**16 January**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	23 May	100 kg MAP	
Pre-em herbicide:	21 May	Treflan 2.00 L	
		Overwatch 1.25 L/ha	
		Paraquat 2.40 L/ha	
Post-em herbicide:	2 June	Mateno Complete 0.75 L/ha	
		LVE MCPA 570 0.45 L/ha	
		Lontrel Advanced 0.1 L/ha	
Nitrogen:	6 July	50 kg N/ha	
	28 Aug	100 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.50 L/ha
	GS59-61	----	Opus 0.50 L/ha

VIC Barley TOS 1 (FAR VIC II B23-13-01)

Sown: 30 April 2023
Harvested: 22 December 2023
Soil Type: Grey Clay Loam
Previous Crop: Faba Beans

Cultivar: Various
FAR Code: FAR VIC II B23-13-01
GSR (Apr-Nov): 375mm

Key Points:

- *Yields varied from 5.09 – 6.23t/ha depending on variety and fungicide program.*
- *Poor weather during harvest resulted in delays that had a significant effect on head loss, which affected all varieties, but Minotaur in particular.*
- *However, along with AGT B0318 and Rosalind, Minotaur was one of the highest yielding cultivars, all three showing good resistance to NFNB.*
- *There was no significant yield response to fungicide but there were significant differences in net form of net blotch (NFNB) infection which indicated fungicides were giving poor control of this disease.*
- *The variety Newton was very disease resistant and stood well, but was not higher yielding than the spring barley varieties in this trial.*
- *Minotaur had the worst head loss in a delayed harvest (100 heads/m^2), while Rosalind had the best (55 heads/m^2).*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – April 29 sown.

	Management Level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Yield t/ha**		**Yield t/ha**		**Yield t/ha**	
RGT Planet (s)	5.25	-	5.53	-	**5.39**	**b**
Rosalind (s)	6.23	-	6.21	-	**6.22**	**a**
Newton (w)	5.07	-	5.16	-	**5.12**	**b**
AGTB0318 (s)	5.51	-	6.22	-	**5.87**	**a**
Minotaur (s)	6.15	-	6.02	-	**6.09**	**a**
Mean	**5.64**	**-**	**5.83**	**-**	**5.74**	
LSD Cultivar p = 0.05	0.42		**P val**		<0.001	
LSD Management p = 0.05	ns		**P val**		0.363	
LSD Cultivar x Man. p = 0.05	ns		**P val**		0.291	

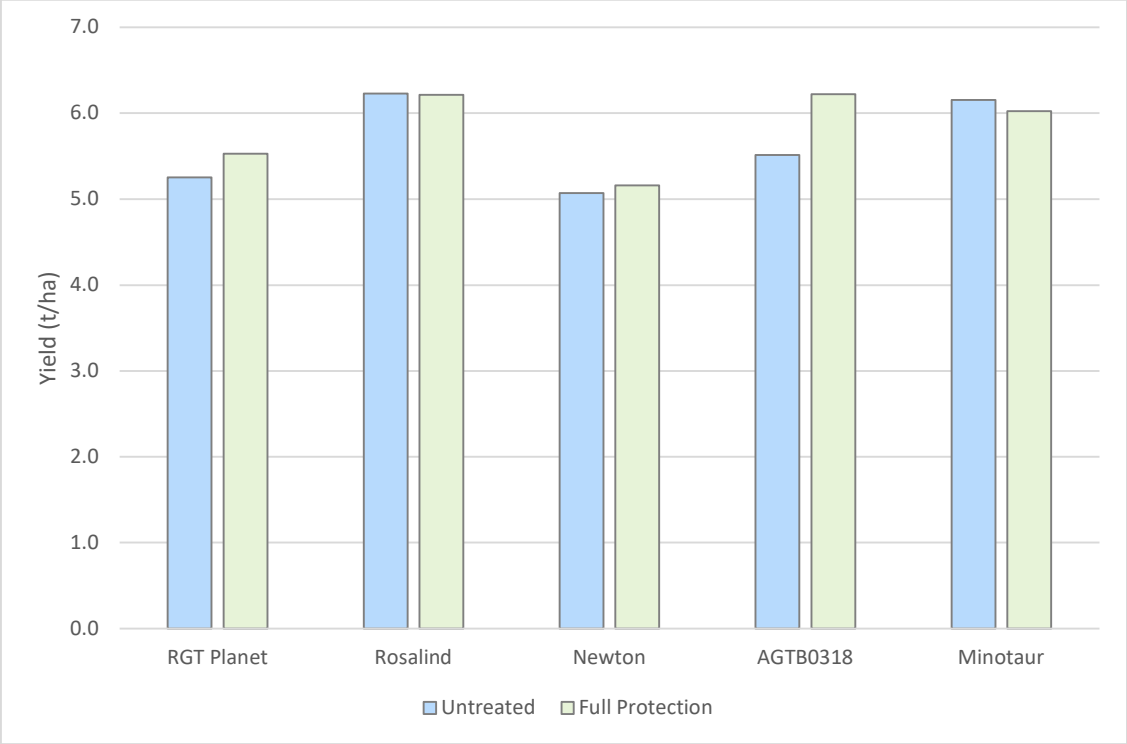

Figure 1. Influence of fungicide and variety on yield (t/ha). All fungicide differences are non-significant.

Table 2. Influence of fungicide on the protein (%) and test weights (kg/hL) of barley cultivars plus and minus fungicide – December 22 harvest.

	Management Level											
	Untreated		Full protection		Mean		Untreated		Full protection		Mean	
Cultivar	Protein %		Protein %		Protein %		Test weight kg/hL		Test weight kg/hL		Test weight kg/hL	
RGT Planet	12.7	-	12.5	-	**12.6**	**c**	67.1	-	67.0	-	**67.1**	**b**
Rosalind	13.3	-	13.2	-	**13.3**	**b**	67.0	-	67.4	-	**67.2**	**b**
Newton	14.2	-	14.1	-	**14.1**	**a**	64.2	-	62.9	-	**63.5**	**d**
AGTB0318	12.9	-	12.8	-	**12.8**	**c**	64.8	-	65.4	-	**65.1**	**c**
Minotaur	13.3	-	13.3	-	**13.3**	**b**	68.2	-	68.3	-	**68.3**	**a**
Mean	**13.3**	**-**	**13.2**	**-**	**13.2**		**66.3**	**-**	**66.2**	**-**	**66.2**	
Cultivar	**LSD p = 0.05**	0.3	**P val**	<0.001			**LSD p = 0.05**	0.9	**P val**	<0.001		
Management	**LSD p = 0.05**	ns	**P val**	0.508			**LSD p = 0.05**	ns	**P val**	0.871		
Cult. x Man.	**LSD p = 0.05**	ns	**P val**	0.925			**LSD p = 0.05**	ns	**P val**	0.292		

Table 3. Influence of fungicide on the retention (% > 2.5mm) and screenings (% < 2.2mm) of barley cultivars plus and minus fungicide – December 22 harvest.

	Management Level											
	Untreated		Full protection		Mean		Untreated		Full protection		Mean	
Cultivar	Retention %		Retention %		Retention %		Screenings %		Screenings %		Screenings %	
RGT Planet	87.9	-	94.7	-	**91.3**	**b**	4.6	-	1.6	-	**3.1**	**ab**
Rosalind	94.5	-	95.8	-	**95.2**	**a**	2.3	-	1.5	-	**1.9**	**b**
Newton	83.9	-	85.0	-	**84.4**	**c**	5.1	-	3.9	-	**4.5**	**a**
AGTB0318	95.4	-	97.1	-	**96.2**	**a**	1.8	-	1.4	-	**1.6**	**b**
Minotaur	93.6	-	95.9	-	**94.8**	**a**	3.1	-	1.5	-	**2.3**	**b**
Mean	**91.1**	**-**	**93.7**	**-**	**92.4**		**3.4**	**-**	**2.0**	**-**	**2.7**	
Cultivar	**LSD p = 0.05**	2.2	**P val**	<0.001	**LSD p = 0.05**	1.6	**P val**	0.007				
Management	**LSD p = 0.05**	ns	**P val**	0.093	**LSD p = 0.05**	ns	**P val**	0.122				
Cult. x Man.	**LSD p = 0.05**	ns	**P val**	0.067	**LSD p = 0.05**	ns	**P val**	0.536				

Disease assessment data

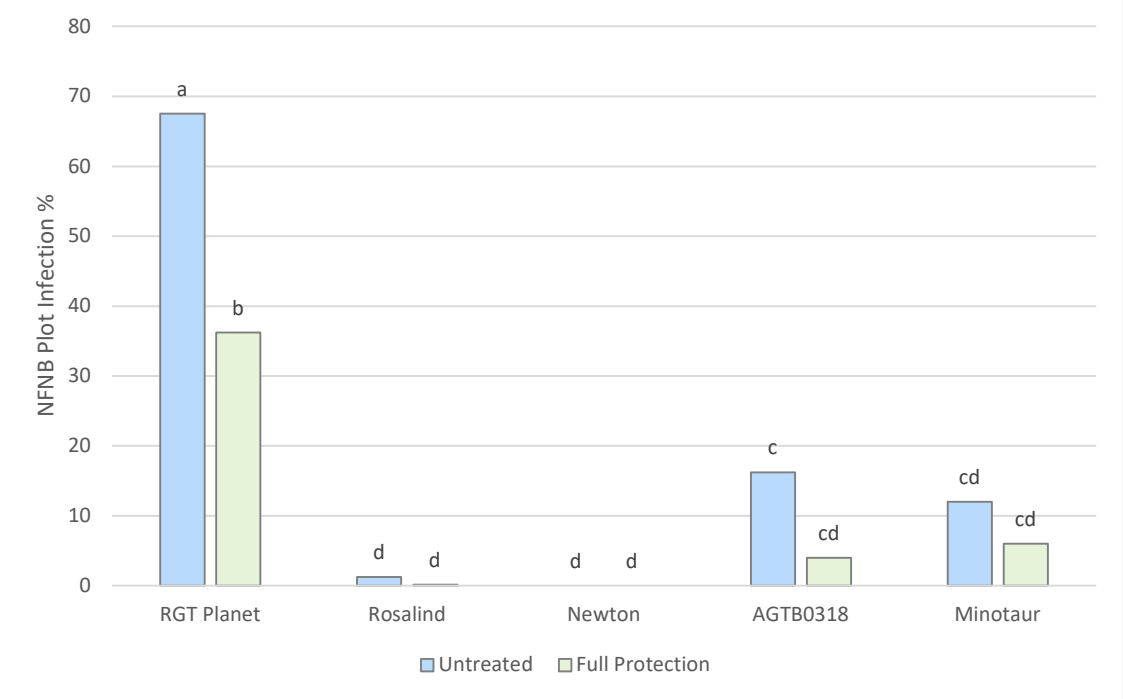

Figure 1. Influence of variety and fungicide on plot % infection of net form of net blotch (NFNB) – assessed September 27 (Cultivar x Management LSD p-0.05 = 13.6, P value = 0.017).

Lodging

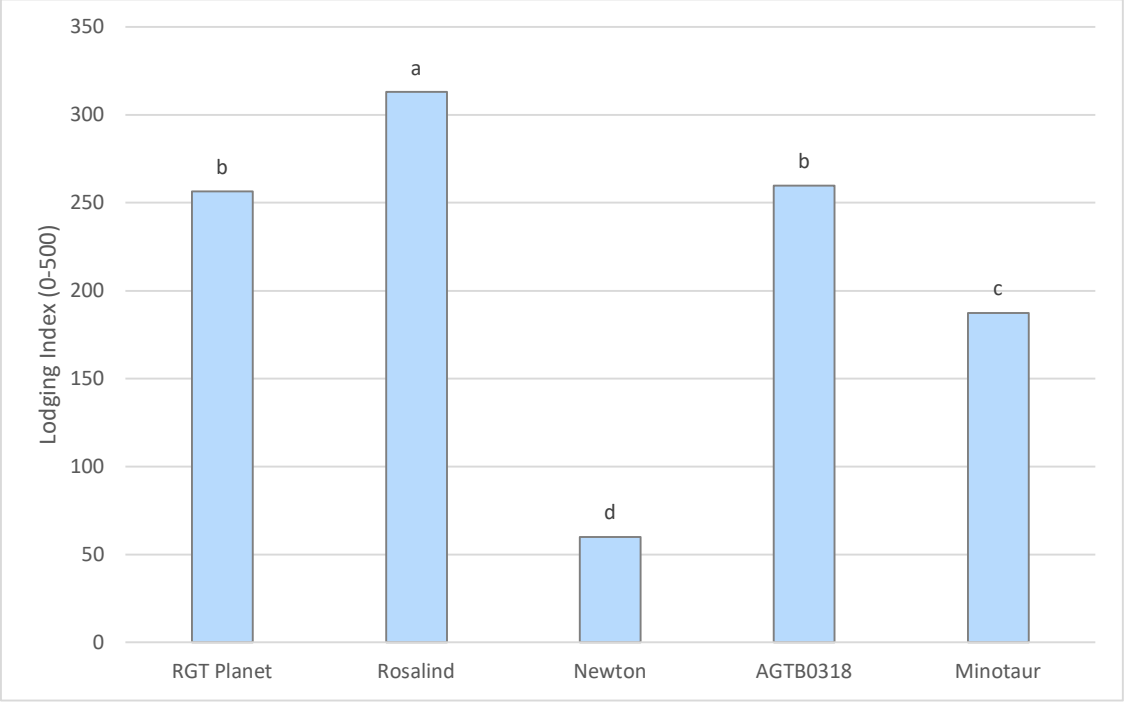

Figure 2. Influence of variety on lodging index (0-500) at harvest (LSD p-value 0.05 = 51, P value = <0.001).

Development

Table 4. Influence of variety on phenology (speed of development) and head loss pre harvest (mean of treated and untreated crops).

Cultivar	Zadoks Stage (Sept 27)				Head Loss Pre Harvest /m2			
RGT Planet	71	a			67.7	bc		
Rosalind	70	ab			55.2	c		
Newton	48	c			72.4	bc		
AGTB0318	70	ab			86.6	ab		
Minotaur	67	b			100.7	a		
Mean					**76.5**			
Cultivar	**LSD p = 0.05**	3.4	**P val**	<0.001	**LSD p = 0.05**	28	**P val**	0.027
Management	**LSD p = 0.05**	ns	**P val**	0.784	**LSD p = 0.05**	ns	**P val**	0.170
Cultivar x Man.	**LSD p = 0.05**	ns	**P val**	0.527	**LSD p = 0.05**	ns	**P val**	0.142

Trial Inputs

Table 5. Trial input and management details (kg, g, ml/ha).

Sowing date:		**29 April**	
Harvest date:		**22 December**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	29 April	100 kg MAP	
Pre-em herbicide:	28 April	Treflan 2.00 L	
		Overwatch 1.25 L/ha	
		Paraquat 2.40 L/ha	
Post-em herbicide:	2 June	Mateno Complete 0.75 L/ha	
		LVE MCPA 570 0.45 L/ha	
		Lontrel Advanced 0.10 L/ha	
Nitrogen:	6 July	50 kg N/ha	
	28 Aug	100 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.50 L/ha

VIC Barley TOS 2 (FAR VIC II B23-14-02)

Sown: 23 May 2023
Harvested: 30 December 2023
Soil Type: Grey Clay Loam
Previous Crop: Faba Beans

Cultivar: Various
FAR Code: FAR VIC II B23-14-02
GSR (Apr-Nov): 375mm

Key Points:

- *Yields varied from 4.73 – 7.02t/ha depending on variety and fungicide program.*
- *Rosalind, Neo, IGB21130, Firefoxx, and the FAR coded line SB5 all yielded more than 6.5t/ha.*
- *Poor weather during harvest resulted in delays that had a significant effect on head loss, which affected all varieties but Minotaur, RP 19034, RP 19013 and RGT Planet in particular.*
- *An average response to fungicide application across all varieties of 0.41t/ha was recorded but the difference was not significant (p=0.062).*
- *A significant interaction between fungicide application and cultivar was observed in net form net blotch (NFNB) and scald infections indicating that susceptible varieties had a greater response to fungicides than the more resistant varieties.*
- *Grain quality varied with cultivar, but grain improvement responses to fungicide were small or insignificant.*
- *Crop brackling and lodging were relatively high, but Firefoxx and IGB21130 showed greater stem strength compared to other varieties.*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – 23 May sown.

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
RGT Planet (s)	4.94 -	5.52 -	**5.23 de**
Rosalind (s)	6.65 -	6.78 -	**6.71 a**
Laureate (s)	5.52 -	6.43 -	**5.98 bc**
Firefoxx (s)	6.31 -	6.75 -	**6.53 ab**
IGB21130 (s)	6.60 -	6.65 -	**6.63 a**
Neo (s)	6.54 -	6.94 -	**6.74 a**
Minotaur (s)	4.73 -	5.16 -	**4.95 ef**
Asteroid (s)	5.51 -	5.89 -	**5.70 cd**
RP 19034 (s)	5.10 -	4.21 -	**4.66 f**
RP 19013 (s)	5.00 -	5.30 -	**5.15 def**
FAR SB2 (s)	5.38 -	6.45 -	**5.91 c**
FAR SB1 (s)	5.64 -	6.28 -	**5.96 c**
FAR SB5 (s)	6.23 -	7.02 -	**6.62 a**
Mean	**5.70 -**	**6.11 -**	**5.90**
LSD Cultivar p = 0.05	0.56	**P value**	<0.001
LSD Management p = 0.05	ns	**P value**	0.062
LSD Cultivar x Man. p = 0.05	ns	**P value**	0.155

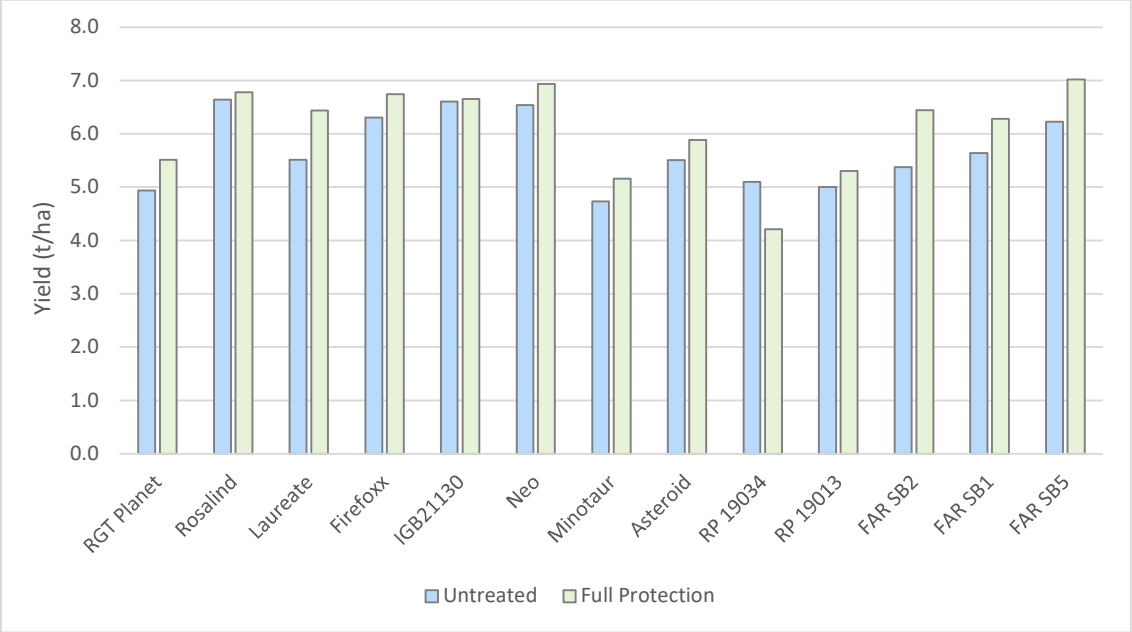

Figure 1. Influence of fungicide and variety on yield (t/ha) – harvested 30 December.

Table 2. Influence of fungicide on the protein (%) and test weights (kg/hL) of barley cultivars plus and minus fungicide – December 30 harvest.

	Management Level					
	Untreated	**Full protection**	**Mean**	**Untreated**	**Full protection**	**Mean**
Cultivar	**Protein %**	**Protein %**	**Protein %**	**Test weight kg/hL**	**Test weight kg/hL**	**Test weight kg/hL**
RGT Planet	12.8 -	12.9 -	**12.9 a-e**	61.2 -	61.9 -	**61.6 e**
Rosalind	12.3 -	12.3 -	**12.3 e**	64.6 -	64.6 -	**64.6 a**
Laureate	13.0 -	13.3 -	**13.1 a-c**	61.6 -	63.2 -	**62.4 cd**
Firefoxx	13.5 -	12.8 -	**13.2 a-c**	62.1 -	63.2 -	**62.6 bc**
IGB21130	12.7 -	12.7 -	**12.7 b-e**	62.2 -	63.3 -	**62.8 bc**
Neo	12.5 -	12.2 -	**12.3 de**	61.4 -	62.5 -	**62.0 cde**
Minotaur	13.5 -	13.3 -	**13.4 a**	63.8 -	64.6 -	**64.2 a**
Asteroid	13.2 -	13.4 -	**13.3 ab**	62.8 -	63.9 -	**63.3 b**
RP 19034	12.6 -	13.3 -	**12.9 a-d**	64.7 -	65.1 -	**64.9 a**
RP 19013	13.2 -	12.3 -	**12.7 b-e**	61.0 -	62.4 -	**61.7 de**
FAR SB2	12.8 -	12.5 -	**12.6 c-e**	61.3 -	63.0 -	**62.1 cde**
FAR SB1	13.0 -	12.8 -	**12.9 a-e**	61.5 -	62.5 -	**62.0 cde**
FAR SB5	12.8 -	12.2 -	**12.5 de**	62.1 -	63.3 -	**62.7 bc**
Mean	**12.9** -	12.7 -	**12.8**	**62.3 b**	**63.3 a**	**62.8**
	LSD p = 0.05		**P Value**	**LSD p = 0.05**		**P Value**
Cultivar	0.6		0.005	0.8		<0.001
Management	ns		0.110	0.6		0.012
Cult. x Man.	ns		0.417	ns		0.820

Table 3. Influence of fungicide on the retention (% > 2.5mm) and screenings (% < 2.2mm) of barley cultivars plus and minus fungicide – December 30 harvest.

	Management Level					
	Untreated	Full protection	Mean	Untreated	Full protection	Mean
Cultivar	Retention (%)	Retention (%)	Retention (%)	Screenings (%)	Screenings (%)	Screenings (%)
RGT Planet	87.2 -	90.5 -	**88.8 ef**	3.2 -	2.7 -	**2.9 a**
Rosalind	94.5 -	94.6 -	**94.5 ab**	1.6 -	1.5 -	**1.5 f**
Laureate	95.4 -	96.3 -	**95.8 a**	1.8 -	1.7 -	**1.7 def**
Firefoxx	93.9 -	94.9 -	**94.4 ab**	1.7 -	1.6 -	**1.6 ef**
IGB21130	93.7 -	94.0 -	**93.8 abc**	2.1 -	2.1 -	**2.1 b-e**
Neo	94.5 -	95.5 -	**95.0 ab**	2.3 -	2.1 -	**2.2 bcd**
Minotaur	89.7 -	93.3 -	**91.5 cd**	3.1 -	2.0 -	**2.5 ab**
Asteroid	92.0 -	95.1 -	**93.5 a-d**	2.0 -	1.5 -	**1.8 def**
RP 19034	91.9 -	93.2 -	**92.5 bcd**	2.0 -	2.0 -	**2.0 c-f**
RP 19013	88.9 -	93.8 -	**91.3 cde**	2.8 -	1.6 -	**2.2 bcd**
FAR SB2	85.2 -	92.0 -	**88.6 f**	3.5 -	2.3 -	**2.9 a**
FAR SB1	93.4 -	95.4 -	**94.4 ab**	2.2 -	1.8 -	**2.0 c-f**
FAR SB5	88.4 -	93.8 -	**91.1 de**	2.7 -	1.9 -	**2.3 bc**
Mean	**91.4 b**	**94.0 a**	**92.7**	**2.4 a**	**1.9 b**	**2.2**
	LSD p = 0.05		**P value**	**LSD p = 0.05**		**P value**
Cultivar	2.5		<0.001	0.5		<0.001
Management	1.9		0.026	0.4		0.040
Cult. x Man.	ns		0.186	ns		0.079

Disease assessment data

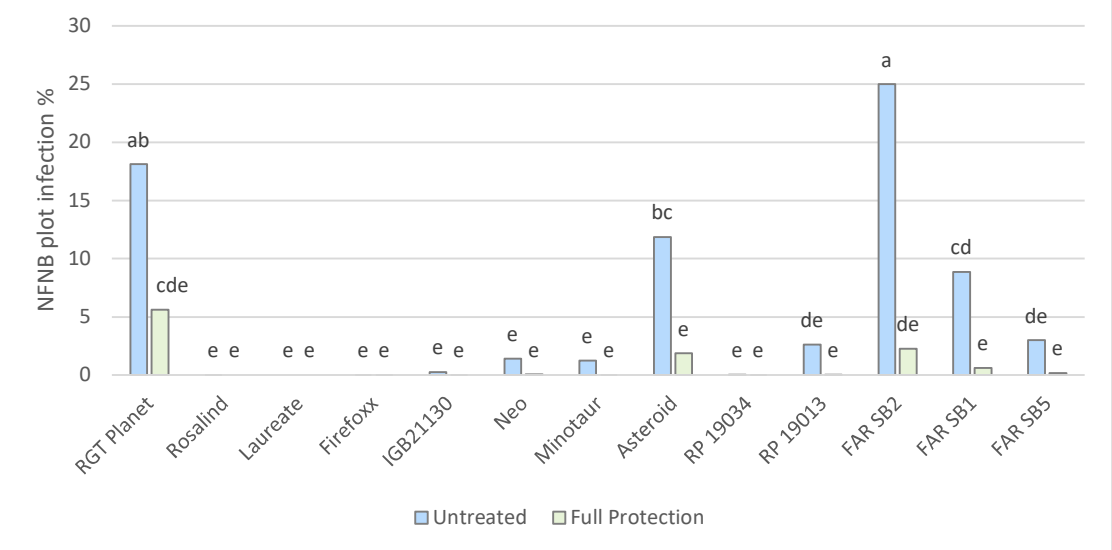

Figure 2. Influence of variety and fungicide on plot % infection of net form of net blotch (NFNB) – assessed 2 October (Cultivar x Management LSD p-0.05 = 6.9, P value = <0.001).

Table 4. Influence of fungicide and cultivar on the plot infection % of scald and barley yellow dwarf virus (BYDV) – assessed 2 October.

	Management Level					
	Untreated	Full protection	Mean	Untreated	Full protection	Mean
Cultivar	Scald (%)	Scald (%)	Scald (%)	BYDV (%)	BYDV (%)	BYDV (%)
RGT Planet	0.0 c	0.0 c	**0.0**	0.0 -	0.1 -	**0.1 b**
Rosalind	0.0 c	0.0 c	**0.0**	0.0 -	0.0 -	**0.0 b**
Laureate	0.0 c	0.0 c	**0.0**	0.0 -	0.0 -	**0.0 b**
Firefoxx	0.0 c	0.0 c	**0.0**	0.0 -	0.0 -	**0.0 b**
IGB21130	0.1 c	0.0 c	**0.1**	0.0 -	0.0 -	**0.0 b**
Neo	0.2 c	0.0 c	**0.1**	0.0 -	0.0 -	**0.0 b**
Minotaur	8.3 b	0.0 c	**4.1**	0.8 -	1.0 -	**0.9 a**
Asteroid	0.0 c	0.0 c	**0.0**	0.0 -	0.0 -	**0.0 b**
RP 19034	0.4 c	0.0 c	**0.2**	0.0 -	0.0 -	**0.0 b**
RP 19013	13.8 a	0.4 c	**7.1**	0.0 -	0.0 -	**0.0 b**
FAR SB2	0.3 c	0.0 c	**0.1**	0.0 -	0.0 -	**0.0 b**
FAR SB1	0.0 c	0.0 c	**0.0**	0.0 -	0.1 -	**0.1 b**
FAR SB5	0.3 c	0.0 c	**0.1**	0.0 -	0.0 -	**0.0 b**
Mean	**1.8** -	**0.0** -	**0.9**	**0.1** -	**0.1** -	**0.1**
	LSD p = 0.05		**P value**	**LSD p = 0.05**		**P value**
Cultivar	3.5		0.007	0.2		<0.001
Management	ns		0.220	ns		0.106
Cult. x Man.	5.4		0.013	ns		0.977

Lodging, brackling and head loss

Table 5. Influence of variety on head loss at harvest (mean of treated and untreated crops).

Cultivar	**Head Loss at Harvest /m2**	
RGT Planet	95.8	bc
Rosalind	59.4	de
Laureate	68.9	cde
Firefoxx	48.9	e
IGB21130	68.9	cde
Neo	96.7	bc
Minotaur	136.9	a
Asteroid	76.9	cde
RP 19034	119.7	ab
RP 19013	118.0	ab
FAR SB2	71.9	cde
FAR SB1	88.0	bcd
FAR SB5	63.3	de
Mean	**85.7**	
	LSD p = 0.05	**P value**
Cultivar	32	<0.001
Management	ns	0.870
Cultivar x Man.	ns	0.201

Table 6. Influence of fungicide and cultivar on crop lodging (0-500) and brackling (%) – assessed at harvest 30 December.

	Management Level					
	Untreated	Full protection	Mean	Untreated	Full protection	Mean
Cultivar	Lodging (0-500)	Lodging (0-500)	Lodging (0-500)	Brackling (%)	Brackling (%)	Brackling (%)
RGT Planet	140 -	155 -	**148 bc**	75.0 -	81.3 -	**78.1 a**
Rosalind	236 -	248 -	**242 a**	65.0 -	58.8 -	**61.9 bc**
Laureate	110 -	173 -	**141 bc**	62.5 -	61.3 -	**61.9 bc**
Firefoxx	53 -	85 -	**69 e**	42.5 -	32.5 -	**37.5 d**
IGB21130	58 -	74 -	**66 e**	28.8 -	17.5 -	**23.1 d**
Neo	100 -	114 -	**107 d**	86.3 -	72.5 -	**79.4 a**
Minotaur	131 -	155 -	**143 bc**	81.3 -	78.8 -	**80.0 a**
Asteroid	150 -	178 -	**164 b**	80.0 -	63.8 -	**71.9 abc**
RP 19034	221 -	268 -	**244 a**	67.5 -	75.0 -	**71.3 abc**
RP 19013	255 -	236 -	**246 a**	81.3 -	81.3 -	**81.3 a**
FAR SB2	138 -	113 -	**125 cd**	75.0 -	68.8 -	**71.9 abc**
FAR SB1	160 -	143 -	**151 bc**	78.8 -	73.8 -	**76.3 ab**
FAR SB5	113 -	93 -	**103 d**	63.8 -	51.3 -	**57.5 c**
Mean	**143 -**	**156 -**	**150**	**68.3 -**	**62.8 -**	**65.5**
	LSD p = 0.05		**P value**	**LSD p = 0.05**		**P value**
Cultivar	32		<0.001	15.4		<0.001
Management	ns		0.077	ns		0.354
Cult. x Man.	ns		0.156	ns		0.958

Trial Inputs

Table 7. Trial input and management details (kg, g, L/ha).

Sowing date:		**23 May**	
Harvest date:		**30 December**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	23 May	100 kg MAP	
Pre-em herbicide:	21 May	Treflan 2.00 L	
		Overwatch 1.25 L/ha	
		Paraquat 2.40 L/ha	
Post-em herbicide:	2 June	Mateno Complete 0.75 L/ha	
		LVE MCPA 570 0.45 L/ha	
		Lontrel Advanced 0.10 L/ha	
Nitrogen:	6 July	50 kg N/ha	
	28 Aug	100 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.42 L/ha

Millicent SA

SA Wheat (FAR SAC II W23-08)

Sown: 10 May 2023
Harvested: 15 January 2024
Soil Type: Organosol (peat)
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR SAC II W23-08
GSR (Apr-Nov): *689.0mm*

Key Points:

- *There was a significant yield interaction (<0.001) between variety and fungicide application with coded wheats, all showing either no or small non-significant yield responses to fungicide application compared to the Rockstar and RGT Accroc controls.*
- *AGFWH010222 and FAR WW2 were significantly higher yielding than all other varieties tested in this trial and were resistant to stripe rust (the principal disease present).*
- *FAR WW2 which was only tested in Victoria in 2022 is a European red wheat which has performed extremely well, particularly in true HRZ environments such as Millicent, southern Victoria and Tasmania.*
- *RGT Waugh (white wheat) performed strongly giving similar yields to RGT Cesario and RGT Accroc, with RGT Accroc giving over 3t/ha yield response to fungicide application (3 sprays).*
- *Protein levels averaged 11.8% suggesting yields were optimised in the trial (150kg N/ha applied). The only significant differences were due to variety.*
- *Test weights and screenings were significantly improved with fungicide application, but the improvement varied with variety (significant interaction).*
- *V14035-125 has been awarded AH in the Southeast (other regions classification to follow in 2024). V15019-088 also has quality potential. Both varieties showed good resistance to disease.*

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

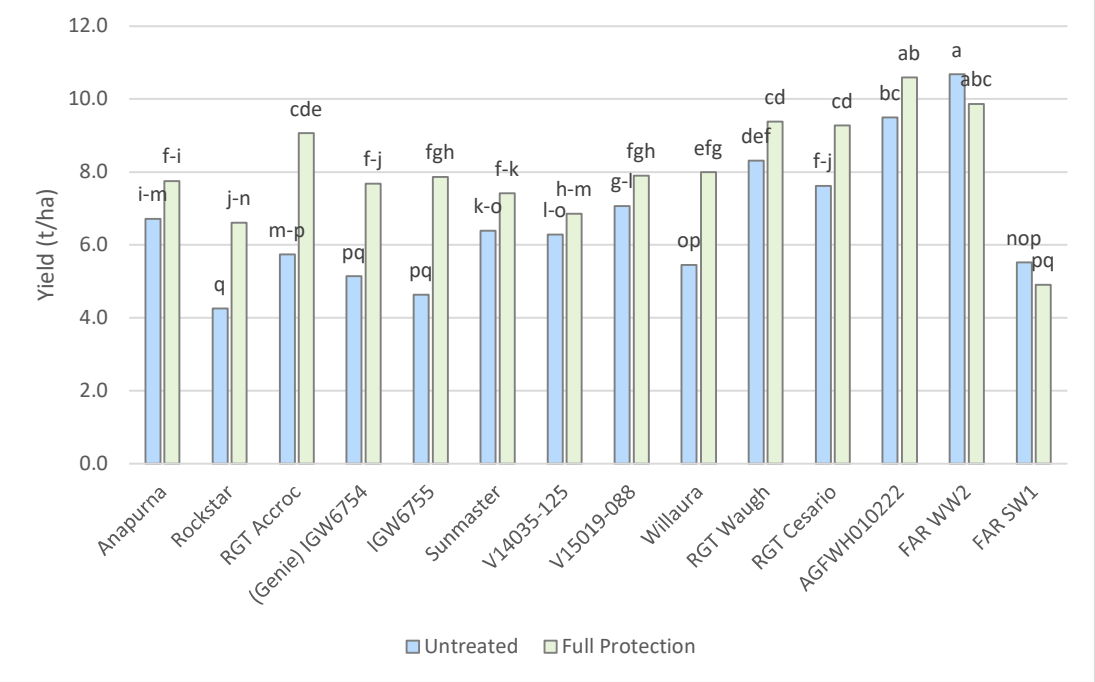

Figure 1. Influence of cultivar and fungicide application (3 foliar sprays) on grain yield (t/ha).

Table 1. Influence of fungicide on the grain yield (t/ha) of wheat cultivars plus and minus fungicide.

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
Anapurna (w)	6.71 i-m	7.75 f-i	**7.23**
Rockstar (s)	4.25 q	6.60 j-n	**5.43**
RGT Accroc (w)	5.74 m-p	9.06 cde	**7.40**
Genie (IGW6754) (s)	5.14 pq	7.68 f-j	**6.41**
IGW6755 (s)	4.63 pq	7.87 fgh	**6.25**
Sunmaster (s)	6.39 k-o	7.41 f-k	**6.90**
V14035-125 (s)	6.28 l-o	6.85 h-m	**6.57**
V15019-088 (s)	7.07 g-l	7.90 fgh	**7.48**
Willaura (s)	5.45 op	8.00 efg	**6.72**
RGT Waugh (w)	8.31 def	9.39 cd	**8.85**
RGT Cesario (w)	7.62 f-j	9.27 cd	**8.44**
AGFWH010222 (w)	9.49 bc	10.59 ab	**10.04**
FAR WW2 (w)	10.68 a	9.86 abc	**10.27**
FAR SW1 (s)	5.51 nop	4.90 pq	**5.21**
Mean	**6.66**	**8.08**	**7.37**
LSD Cultivar p = 0.05	0.79	**P val**	<0.001
LSD Management p = 0.05	0.55	**P val**	0.004
LSD Cultivar x Man. p = 0.05	1.11	**P val**	<0.001

Note: w = Winter Wheat, s = Spring Wheat

Table 2. Influence of fungicide on the test weight (kg/hl) and protein (%) of wheat cultivars plus and minus fungicide.

	Management Level											
	Untreated		**Full protection**		**Mean**	**Untreated**		**Full protection**		**Mean**		
Cultivar	**Test Weight (kg/hl)**		**Test Weight (kg/hl)**		**Test Weight (kg/hl)**	**Protein %**		**Protein %**		**Protein %**		
Anapurna	73.5	gh	76.5	a-e	**75.0**	12.5	-	12.8	-	**12.6**	**b**
Rockstar	64.5	j	75.8	c-g	**70.1**	11.6	-	11.9	-	**11.8**	**d**
RGT Accroc	70.5	i	74.9	c-h	**72.7**	11.0	-	11.6	-	**11.3**	**e**
Genie (IGW6754)	72.6	hi	78.4	ab	**75.5**	11.2	-	12.0	-	**11.6**	**de**
IGW6755	64.9	j	74.5	d-h	**69.7**	12.0	-	11.6	-	**11.8**	**d**
Sunmaster	74.8	c-h	77.1	abc	**76.0**	11.8	-	12.7	-	**12.2**	**c**
V14035-125	73.5	gh	76.2	a-f	**74.9**	11.8	-	11.9	-	**11.8**	**d**
V15019-088	75.5	c-g	78.5	a	**77.0**	10.6	-	11.1	-	**10.8**	**g**
Willaura	66.5	j	74.0	e-h	**70.2**	10.9	-	10.9	-	**10.9**	**fg**
RGT Waugh	75.7	c-g	77.3	abc	**76.5**	12.1	-	12.7	-	**12.4**	**bc**
RGT Cesario	75.2	c-g	77.1	abc	**76.2**	11.5	-	11.8	-	**11.6**	**de**
AGFWH010222	73.7	fgh	75.9	b-g	**74.8**	10.6	-	11.0	-	**10.8**	**g**
FAR WW2	75.9	b-g	76.8	a-d	**76.3**	10.9	-	11.6	-	**11.3**	**ef**
FAR SW1	75.6	c-g	77.3	abc	**5.21**	14.5	-	14.8	-	**14.7**	**a**
Mean	**72.3**		**76.4**		**74.4**	11.6	-	12.0	-	**11.8**		
Cultivar	**LSD p=0.05**	1.81	**P val**	<0.001		**LSD p=0.05**	0.58	**P val**	<0.001			
Management	**LSD p=0.05**	1.84	**P val**	0.006		**LSD p=0.05**	ns	**P val**	0.135			
Cultivar x Man.	**LSD p=0.05**	2.57	**P val**	<0.001		**LSD p=0.05**	ns	**P val**	0.101			

Table 3. Influence of fungicide on the screenings (%) of wheat cultivars plus and minus fungicide.

	Management Level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Screenings %**		**Screenings %**		**Screenings %**	
Anapurna	2.8	de	2.0	f-l	**2.4**	
Rockstar	3.6	c	1.5	i-m	**2.5**	
RGT Accroc	2.7	def	2.0	f-l	**2.3**	
Genie (IGW6754)	4.7	b	2.4	d-g	**3.5**	
IGW6755	5.3	b	2.3	d-h	**3.8**	
Sunmaster	2.5	d-g	1.6	i-m	**2.0**	
V14035-125	2.8	d	2.0	f-k	**2.4**	
V15019-088	1.9	g-m	1.3	klm	**1.6**	
Willaura	6.8	a	3.6	c	**5.2**	
RGT Waugh	1.3	lm	1.3	m	**1.3**	
RGT Cesario	2.0	f-j	1.4	j-m	**1.7**	
AGFWH010222	2.4	d-g	2.1	e-i	**2.2**	
FAR WW2	1.8	g-m	1.6	i-m	**1.7**	
FAR SW1	1.7	h-m	1.4	j-m	**1.5**	
Mean	**3.0**		**1.9**		**2.4**	
LSD Cultivar p = 0.05	0.48			**P val**	<0.001	
LSD Management p = 0.05	0.25			**P val**	<0.001	
LSD Cultivar x Man. p = 0.05	0.68			**P val**	<0.001	

Trial Inputs

Table 4. Trial input and management details (kg, g, ml/ha).

Sowing date:		**10 May**	
Harvest date:		**15 January**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	10 May	100 kg MAP	
Herbicide:	9 May	TriflurX 3 L/ha	
	9 May	Spreadwet 0.2 L/ha	
	15 Aug	Broadside 1.4 L/ha	
Crop protection:	20 Jun	Metarex 3 kg/ha	
	10 Nov	Alpha Scud 0.08 L/ha	
	7 Jan	Metarex 3 kg/ha	
Trace elements:	15 Aug	*Spray Gro 5 L/ha	
	2 Sept	Spray Gro 5 L/ha	
	5 Sept	Spray Gro 5 L/ha	
	16 Sept	Spray Gro 5 L/ha	
Nitrogen:	26 July	50 kg N/ha	
	19 Sept	100 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.50 L/ha
	GS59-61	----	Opus 0.50 L/ha

**SprayGro Smartrace Triple*

SA Barley (FAR SAC II B23-15)

Sown: 11 May 2023
Harvested: 4 January 2024
Soil Type: Organosol (peat)
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR SAC II B23-15
GSR (Apr-Nov): *689.0mm*

Key Points:

- *Yields ranged from 5.44 – 9.15t/ha depending on variety and fungicide treatment.*
- *There was a significant response to fungicide (which averaged 0.64t/ha across all varieties) as a result of net form of net blotch (NFNB), leaf rust and scald infection depending on variety.*
- *The coded European barley SB1 was significantly higher yielding than all varieties other than Asteroid with both varieties exceeding 9t/ha when treated with fungicide.*
- *SB1 and Asteroid both had favourable grain characteristics, but Asteroid had significantly better test weight.*
- *RP 19013 exhibited significantly more lodging than other varieties/lines tested with a susceptibility to scald.*
- *Minotaur yields were disappointing with a large response to fungicide as a result of late leaf rust infection and noticeably higher Barley yellow dwarf virus infection (BYDV), data not shown.*
- *The winter barley Newton was potentially disadvantaged by May sowing and later development but was exceptionally disease resistant.*
- *Neo was lower yielding than in FAR Australia GEN trials in WA with leaf rust infection in the untreated becoming more severe from mid-October onwards.*

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

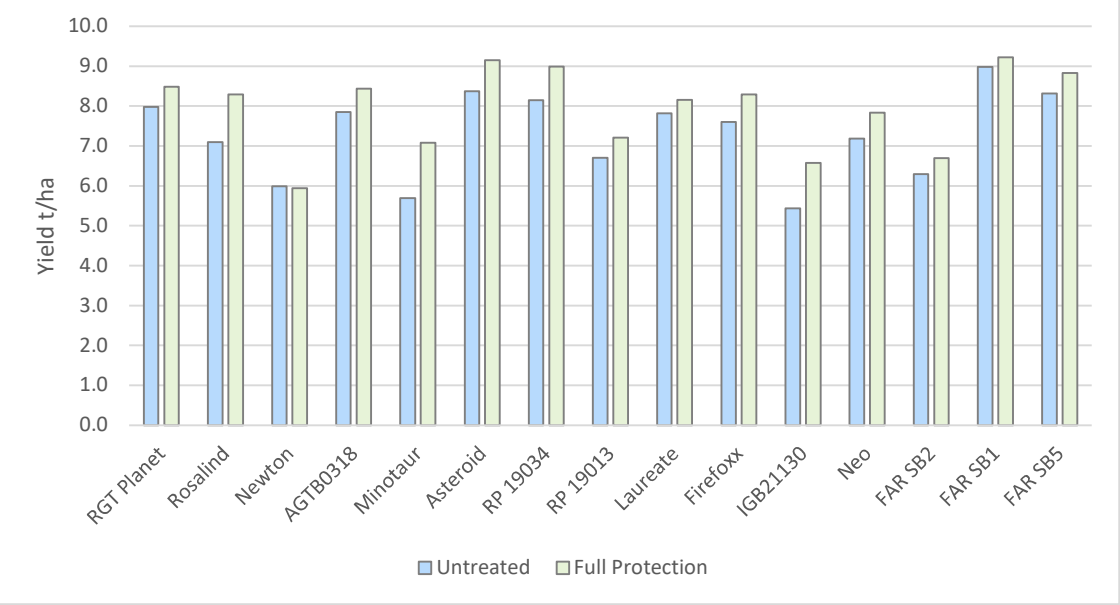

Figure 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – May 10 sown.

Table 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – May 10 sown.

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
RGT Planet (s)	7.98 -	8.48 -	**8.23 cd**
Rosalind (s)	7.10 -	8.29 -	**7.70 ef**
Newton (w)	5.99 -	5.94 -	**5.97 i**
AGTB0318 (s)	7.86 -	8.43 -	**8.14 cde**
Minotaur (s)	5.69 -	7.09 -	**6.39 hi**
Asteroid (s)	8.37 -	9.15 -	**8.76 ab**
RP 19034 (s)	8.15 -	8.99 -	**8.57 bc**
RP 19013 (s)	6.70 -	7.21 -	**6.95 g**
Laureate (s)	7.82 -	8.15 -	**7.98 de**
Firefoxx (s)	7.60 -	8.29 -	**7.94 def**
IGB21130 (s)	5.44 -	6.57 -	**6.00 i**
Neo (s)	7.19 -	7.84 -	**7.51 f**
FAR SB2 (s)	6.29 -	6.69 -	**6.49 gh**
FAR SB1 (s)	8.98 -	9.22 -	**9.10 a**
FAR SB5 (s)	8.31 -	8.83 -	**8.57 bc**
Mean	**7.30 b**	**7.94 a**	**7.62**
LSD Cultivar p = 0.05	0.47	**P val**	<0.001
LSD Management p = 0.05	0.47	**P val**	0.022
LSD Cultivar x Man. p = 0.05	ns	**P val**	0.227

Table 2. Influence of fungicide on the protein (%) and test weights (kg/hL) of barley cultivars plus and minus fungicide – May 10 sown.

	Management Level					
	Untreated	Full protection	Mean	Untreated	Full protection	Mean
Cultivar	Protein %	Protein %	Protein %	Test weight kg/hL	Test weight kg/hL	Test weight kg/hL
RGT Planet	12.2 -	12.3 -	**12.3 e**	60.4 ijk	63.3 abc	**61.8**
Rosalind	12.6 -	12.8 -	**12.7 bcd**	62.2 c-f	63.3 bc	**62.7**
Newton	14.7 -	15.4 -	**15.1 a**	60.6 h-k	61.2 f-j	**60.9**
AGTB0318	12.3 -	13.0 -	**12.7 b-e**	59.3 k	60.7 g-j	**60.0**
Minotaur	11.8 -	12.9 -	**12.4 de**	63.0 bcd	64.6 a	**63.8**
Asteroid	11.9 -	12.6 -	**12.2 e**	63.0 cd	64.3 ab	**63.6**
RP 19034	11.9 -	12.7 -	**12.3 e**	62.0 d-g	62.5 cde	**62.2**
RP 19013	12.2 -	12.4 -	**12.3 de**	60.1 jk	61.7 e-i	**60.9**
Laureate	12.9 -	12.8 -	**12.8 bc**	60.5 h-k	63.4 abc	**62.0**
Firefoxx	12.5 -	12.7 -	**12.6 b-e**	61.1 f-j	63.1 bcd	**62.1**
IGB21130	12.5 -	12.9 -	**12.7 bcd**	60.7 g-j	63.3 bc	**62.0**
Neo	12.4 -	12.3 -	**12.3 de**	57.8 l	61.8 d-h	**59.8**
FAR SB2	12.9 -	13.1 -	**13.0 b**	61.4 e-j	62.3 c-f	**61.9**
FAR SB1	12.3 -	12.6 -	**12.5 cde**	61.3 e-j	63.4 abc	**62.3**
FAR SB5	12.3 -	12.6 -	**12.4 cde**	60.7 g-j	61.1 f-j	**60.9**
Mean	**12.5 -**	**12.9 -**	**12.7**	**60.9**	**62.7**	**61.8**
Cultivar	**LSD p = 0.05** 0.44		**P val** <0.001	**LSD p = 0.05** 0.9		**P val** <0.001
Management	**LSD p = 0.05** ns		**P val** 0.156	**LSD p = 0.05** 1.1		**P val** 0.016
Cultivar x Man.	**LSD p = 0.05** ns		**P val** 0.336	**LSD p = 0.05** 1.3		**P val** 0.007

Table 3. Influence of fungicide on the retention (% > 2.5mm) and screenings (% < 2.2mm) of barley cultivars plus and minus fungicide – May 10 sown.

	Management Level											
	Untreated		Full protection		Mean		Untreated		Full protection		Mean	
Cultivar	Retention %		Retention %		Retention %		Screenings %		Screenings %		Screenings %	
RGT Planet	87.7	a-e	88.0	a-e	**87.9**		5.6	e-h	5.2	f-i	**5.4**	
Rosalind	75.2	ij	83.5	e-h	**79.3**		8.0	b	5.6	e-h	**6.8**	
Newton	87.9	a-e	88.4	a-d	**88.1**		5.3	e-i	4.6	hij	**4.9**	
AGTB0318	84.8	d-g	88.9	a-d	**86.8**		6.4	de	5.0	ghi	**5.7**	
Minotaur	81.9	gh	87.5	a-e	**84.7**		6.8	cd	5.3	e-i	**6.1**	
Asteroid	89.1	a-d	91.3	ab	**90.2**		4.6	hij	3.4	kl	**4.0**	
RP 19034	87.6	a-e	90.2	abc	**88.9**		5.6	e-h	4.6	hij	**5.1**	
RP 19013	79.8	hi	85.6	c-g	**82.7**		6.1	def	4.6	hij	**5.3**	
Laureate	86.8	b-f	91.8	a	**89.3**		5.2	f-i	3.1	l	**4.1**	
Firefoxx	84.8	d-g	89.3	a-d	**87.1**		5.5	e-h	3.8	jkl	**4.7**	
IGB21130	74.8	j	78.9	hij	**76.8**		7.5	bc	4.3	ijk	**5.9**	
Neo	63.2	k	79.7	hi	**71.5**		11.0	a	5.9	d-g	**8.4**	
FAR SB2	75.4	ij	82.4	fgh	**78.9**		7.8	bc	6.2	def	**7.0**	
FAR SB1	88.1	a-e	90.9	ab	**89.5**		5.3	e-i	3.7	jkl	**4.5**	
FAR SB5	85.9	c-g	87.9	a-e	**86.9**		6.0	d-g	5.5	e-h	**5.7**	
Mean	**82.2**		**87.0**		**84.6**		**6.4**		**4.7**		**5.6**	
Cultivar	**LSD p = 0.05**	3.4	**P val**	<0.001			**LSD p = 0.05**	0.8	**P val**	<0.001		
Management	**LSD p = 0.05**	2.9	**P val**	0.013			**LSD p = 0.05**	0.5	**P val**	0.002		
Cultivar x Man.	**LSD p = 0.05**	4.8	**P val**	0.003			**LSD p = 0.05**	1.1	**P val**	<0.001		

Disease assessment data

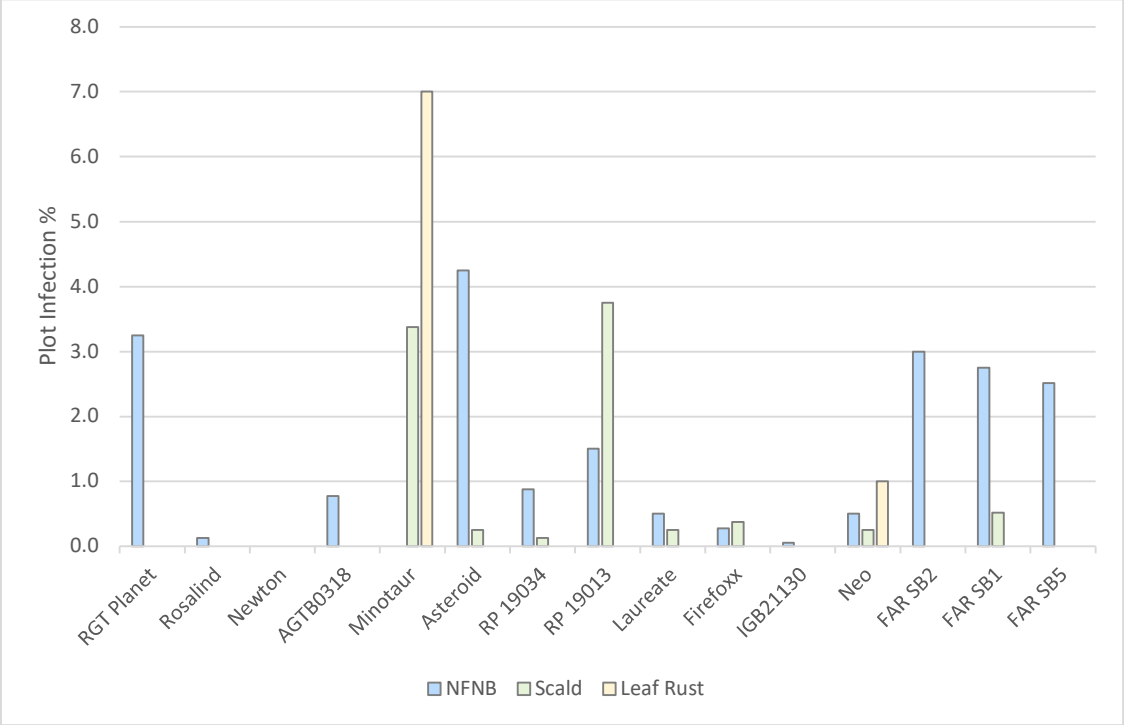

Figure 2. Influence of cultivar on the severity of net form of net blotch (NFNB), Scald and Leaf Rust (plot infection %) on barley cultivars untreated with fungicide (refer to table 4 for p values) – assessed October 18.

Lodging

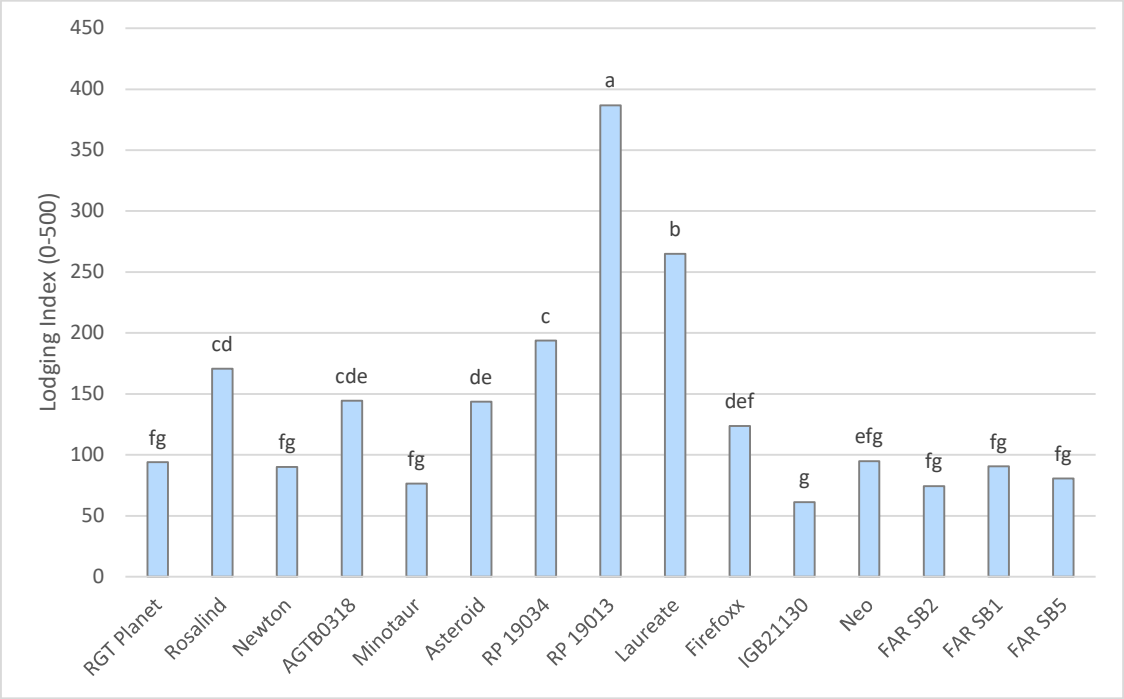

Figure 3. Influence of variety on the lodging index (0-500 scale) of barley cultivars assessed at harvest – January 4.

Development

Table 4. Influence of cultivar on phenology and the influence of fungicide on the severity of net form of net blotch (NFNB), Scald and Leaf Rust (plot infection %) on barley cultivars – assessed October 18.

		Fully Protected Barley Disease Levels Oct 18		
		NFNB	Scald	Leaf Rust
Cultivar	25 Sept Zadoks Stage	Plot Infection %	Plot Infection %	Plot Infection %
RGT Planet	45	2.5 -	0.0 -	0.0 b
Rosalind	49	0.0 -	0.0 -	0.0 b
Newton	33	0.0 -	0.0 -	0.0 b
AGTB0318	43	0.0 -	0.0 -	0.0 b
Minotaur	45	0.0 -	0.0 -	0.0 b
Asteroid	39	0.6 -	0.0 -	0.0 b
RP 19034	37	0.3 -	0.0 -	0.0 b
RP 19013	37	1.0 -	0.5 -	0.0 b
Laureate	33-37	0.0 -	0.0 -	0.0 b
Firefoxx	37-39	0.0 -	0.0 -	0.0 b
IGB21130	33-37	0.0 -	0.0 -	0.0 b
Neo	47	0.0 -	0.0 -	0.0 b
FAR SB2	37-39	0.3 -	0.0 -	0.0 b
FAR SB1	41	1.0 -	0.0 -	0.0 b
FAR SB5	43	0.3 -	0.0 -	0.0 b
	Mean	**0.4**	**0.0**	**0.0**
	LSD Cultivar p = 0.05	1.2	1.2	0.8
	LSD Management p = 0.05	0.4	0.3	0.3
	LSD Cultivar x Man. P = 0.05	ns	ns	1.2
	P-Value Cultivar	<0.001	0.010	<0.001
	P-Value Management	0.006	0.007	0.015
	P-Value Cultivar x Man.	0.084	0.063	<0.001

Trial Inputs

Table 5. Trial input and management details (kg, g, ml/ha).

Sowing date:		**11 May**	
Harvest date:		**4 January**	
Seed rate:		180 seeds/m2	
Basal 35ertilizer:	11 May	100 kg MAP	
Herbicide:	9 May	TriflurX 3 L/ha	
	9 May	Spreadwet 0.2 L/ha	
	15 Aug	Broadside 1.4 L/ha	
Crop protection:	20 Jun	Metarex 3 kg/ha	
	10 Nov	Alpha Scud 0.08 L/ha	
	7 Jan	Metarex 3 kg/ha	
Trace elements:	15 Aug	Spray Gro 5 L/ha	
	2 Sept	Spray Gro 5 L/ha	
	5 Sept	Spray Gro 5 L/ha	
	16 Sept	Spray Gro 5 L/ha	
Nitrogen:	26 July	50 kg N/ha	
	19 Sept	100 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.50 L/h

Wallendbeen NSW

NSW Wheat (FAR NSW II W23-09)

Sown: 20 April 2023
Harvested: 18 December 2023
Soil Type: Red Clay Loam
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR NSW II W23-09
GSR (Apr-Nov): *364.5mm*

Key Points:

- *There was a significant interaction between wheat variety and fungicide response (p<0.001) with three varieties Anapurna, V14051-165 and AGFWH010222 giving a no significant yield response to fungicide.*
- *In contrast Scepter and Willaura gave a 1.85t/ha and 2.17t/ha response to a three-spray fungicide program.*
- *The new European winter feed wheat AGFWH010222 which exhibits shorter season phenology than RGT Accroc and Anapurna was significantly higher yielding than all other varieties/lines tested, irrespective of whether it was treated or untreated.*
- *The drier and warmer season compared to 2020-22 put Scepter at the top of the list being significantly higher yielding than other quality milling wheats, albeit with a need for fungicide.*
- *LRPB Raider (long spring) yielded similar results to the two shorter season winter white wheat lines V14051-165 and V14051-172, however all were 1 – 1.5t/ha lower yielding than Scepter.*
- *LRPB Mowhawk a short season winter wheat, which has AH quality in western Australia, was the second highest yielding variety with and without fungicide.*
- *Despite there being no observable disease infection the red feed wheat AGTW005 still produced a 0.53t/ha significant response to fungicide application.*
- *Except for Willaura, grain quality was similar with most varieties achieving just under 76kg/hL with approximately 5% screenings.*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of wheat cultivars plus and minus fungicide.

	Nil Fungicide		Full Fungicide		Mean	
Anapurna (w)	7.55	cd	7.77	c	**7.66**	c
Scepter (s)	6.68	fgh	8.53	b	**7.60**	c
RGT Accroc (w)	6.47	h	7.01	efg	**6.74**	e
LRPB Raider (s)	6.68	fgh	7.19	de	**6.93**	de
LRPB Mowhawk (w)	7.88	c	8.75	b	**8.31**	b
Willaura (s)	5.77	i	7.94	c	**6.85**	e
V14051-165 (w)	6.81	e-h	7.05	ef	**6.93**	de
V14051-172 (w)	6.69	fgh	7.59	cd	**7.14**	d
AGTW005 (w)	6.61	gh	7.14	e	**6.87**	de
AGFWH010222 (w)	9.48	a	9.85	a	**9.66**	a
Mean	**7.06**	**b**	**7.88**	**a**		

Fungicide	P Val	0.014	LSD (P=0.05)	0.50
Cultivar	P Val	<0.001	LSD (P=0.05)	0.29
Fung x Cultivar	P Val	<0.001	LSD (P=0.05)	0.41

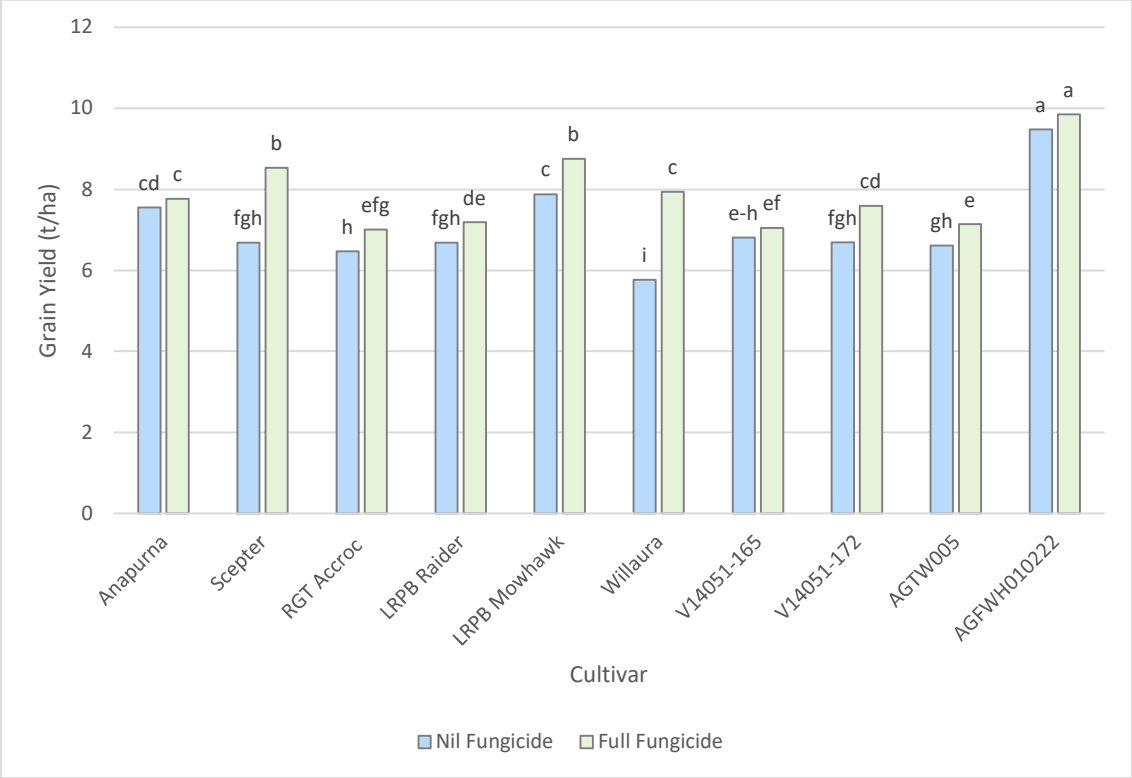

Figure 1. Influence of cultivar and fungicide application on grain yield. Bars with different letters are statistically different, P<0.001 LSD=0.41t/ha.

Table 2. Influence of cultivar and fungicide management on grain quality (protein, test weight, screenings and thousand seed weight (TSW)).

		Protein (%)		Test Weight (kg/hL)		Screenings (%)		TSW (g)	
	Untreated								
1	Anapurna	12.8	c	77.3	ab	6.3	cd	36.7	c-g
2	Scepter	11.2	k	76.1	b-e	4.4	ghi	41.0	b
3	RGT Accroc	12.1	efg	73.4	g	7.0	c	32.4	hij
4	LRPB Raider	12.0	f-i	73.2	g	5.0	fgh	35.8	d-i
5	LRPB Mowhawk	11.5	jk	76.6	a-d	3.8	ij	36.4	d-h
6	Willaura	11.8	g-j	66.4	h	14.0	a	26.7	k
7	V14051-165	12.0	f-i	75.9	b-f	4.5	ghi	35.6	d-i
8	V14051-172	12.0	fgh	75.0	c-g	5.5	d-h	34.6	e-i
9	AGTW005	13.9	a	74.6	efg	5.5	d-g	32.0	ij
10	AGFWH010222	11.5	jk	76.5	a-d	5.2	e-h	40.9	bc
	Full Protection								
1	Anapurna	13.2	b	76.8	abc	6.1	cde	36.9	b-f
2	Scepter	11.3	k	78.3	a	3.3	j	46.9	a
3	RGT Accroc	12.6	cd	74.1	fg	6.0	c-f	32.6	g-j
4	LRPB Raider	12.0	fgh	73.4	g	4.4	hij	37.0	b-f
5	LRPB Mowhawk	11.7	hij	74.5	efg	3.4	ij	37.6	b-e
6	Willaura	11.6	ijk	73.9	g	8.8	b	32.9	f-j
7	V14051-165	12.3	def	76.0	b-f	4.9	fgh	32.5	g-j
8	V14051-172	12.5	cde	76.0	b-f	5.1	e-h	34.1	e-j
9	AGTW005	13.5	b	74.7	d-g	5.4	d-h	30.4	jk
10	AGFWH010222	11.5	jk	76.5	a-d	5.3	d-h	39.8	bcd
	Mean	**12.2**		**75.0**		**5.7**		**35.6**	
	P Value	0.025		<0.001		<0.001		0.049	
	LSD (P=0.05)	0.4		1.9		1.1		4.2	

Disease assessments

Table 3. Influence of variety and fungicide management on disease infection (Septoria tritici blotch (STB) and stripe rust (Yr)), assessed 24 October during grain fill.

		Flag				Flag-1				Flag-2			
		STB		**Yr**		**STB**		**Yr**		**STB**		**Yr**	
	Untreated												
1	Anapurna	0.3	b	0.0	c	1.3	g	0.0	d	4.5	e	0.0	b
2	Scepter	66.3	a	9.5	c	96.3	a	0.3	d	100	a	0.0	b
3	RGT Accroc	0.0	b	7.3	c	1.3	g	18.8	a	15.3	de	6.0	a
4	LRPB Raider	5.5	b	1.0	c	70.0	b	0.3	d	100	a	0.0	b
5	LRPB Mowhawk	0.8	b	23.0	b	53.3	cd	3.8	c	100	a	0.0	b
6	Willaura	1.0	b	70.0	a	57.5	c	9.3	b	100	a	0.0	b
7	V14051-165	4.3	b	1.5	c	45.5	de	0.8	d	95.0	a	0.0	b
8	V14051-172	2.3	b	1.5	c	33.8	e	0.5	d	68.3	b	0.0	b
9	AGTW005	0.0	b	0.0	c	0.0	g	0.3	d	0.0	e	0.0	b
10	AGFWH010222	0.0	b	0.0	c	0.0	g	0.0	d	0.0	e	0.0	b
	Full Protection												
1	Anapurna	0.0	b	0.0	c	0.0	g	0.0	d	0.3	e	0.0	b
2	Scepter	3.5	b	0.3	c	15.3	f	0.0	d	45.0	c	0.0	b
3	RGT Accroc	0.0	b	0.0	c	0.8	g	0.0	d	4.3	e	0.0	b
4	LRPB Raider	0.5	b	0.3	c	4.0	fg	0.0	d	6.8	e	0.0	b
5	LRPB Mowhawk	0.0	b	0.8	c	2.0	g	0.0	d	5.5	e	0.0	b
6	Willaura	0.5	b	0.8	c	8.3	fg	0.0	d	57.0	bc	0.0	b
7	V14051-165	0.5	b	0.0	c	5.0	fg	0.0	d	23.8	d	0.0	b
8	V14051-172	0.3	b	0.0	c	1.3	g	0.0	d	4.3	e	0.0	b
9	AGTW005	0.0	b	0.0	c	0.0	g	0.0	d	0.0	e	0.0	b
10	AGFWH010222	0.0	b	0.0	c	0.0	g	0.0	d	0.0	e	0.0	b
	Mean	**4.3**		**5.8**		**19.8**		**1.7**		**36.5**		**0.3**	
	P Value	<0.001		<0.001		<0.001		<0.001		<0.001		<0.001	
	LSD (P=0.05)	9.0		11.0		12.0		2.6		16.8		1.6	

Trial Inputs

Table 4. Trial input and management details (kg, g, ml/ha).

Sowing date:		**20 April**	
Harvest date:		**18 December**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	20 April	120kg/ha MAP	
Herbicide:	29 April	Sakura 118g/ha	
		Avadex Xtra 1.6L	
		Roundup 2L/ha	
	1 June	LVE MCPA 440ml/ha	
		Lontrel 60g/ha	
		Paradigm 25g/ha	
		Wetter 1000 0.2%	
	25 August	Paradigm 25g/ha	
		Chemwet 0.2%	
Insecticide:	25 August	Cyhella 18ml/ha	
Nitrogen:	2 August	100 kg N/ha	
	5 September	50 kg N/ha	
		162 kg N/ha (incl. 12 kg N/ha at sowing)	
Fungicide:		**Untreated**	**Full Protection**
	GS31-32	----	Prosaro 0.3L/ha
	GS39-41	----	Aviator Xpro 0.5L/ha
	GS61-71	----	Opus 0.5L/ha

Frankland River, WA

WA Wheat TOS 1 (FAR WAA II W23-10-01)

Sown: 29 April
Harvested: 13 December
Soil Type: Forest gravel loam
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR WAA II W23-10-01
GSR (Apr-Oct): 613mm

Key Points:

- *Grain yields of the highest yielding wheats (5t/ha) were approximately 1t/ha **lower** than highest yielding barleys (approx. 6t/ha) sown at the same time, on the same site.*
- *Below average spring rainfall in the critical period of September and October is likely to have reduced yield potential in this trial.*
- *In general spring wheat germplasm was higher yielding than winter wheats, this was particularly the case with longer season, later developing winter wheat varieties such as RGT Cesario and RGT Waugh which flowered well into October.*
- *The highest yielding wheats were IGW6754 (Genie), Kinsei and Denison. Overall, there was little evidence of disease in the trial, and the response to fungicide was relatively small (0.17t/ha mean), although there was a very small (0.1%) significant reduction in % screenings as a result of the fungicide program.*
- *In mid – late September when crops were heading, there was a strong correlation between development stage and final yield, with cultivars showing earlier flowering resulting in higher final grain yields.*
- *Overall, test weights were low with an average of approximately 70kg/hL.*
- *In general, test weights were poor although the highest yielding cultivars produced higher test weights (71.3 – 72.6kg/hL) with grain proteins of 10.7-10.8%.*
- *The screenings for IGW6754 (Genie) were significantly higher (6.7%) than Denison and Kinsei.*

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

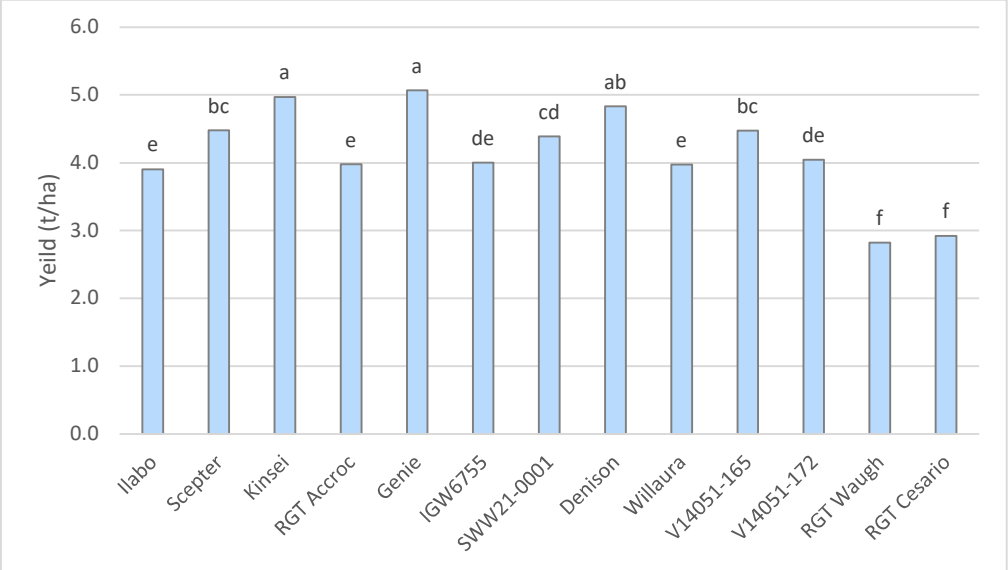

Figure 1. Influence of cultivar on the grain yield (t/ha) using a mean of fungicide treated and untreated (there were no significant differences in yield due to fungicide application) LSD= 0.40 (based on mean of treated and untreated).

Table 1. Influence of fungicide on the grain yield (t/ha) of wheat cultivars plus and minus fungicide.

	Management Level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Yield t/ha**		**Yield t/ha**		**Yield t/ha**	
Illabo (w)	3.82	-	4.00	-	**3.91**	e
Scepter (s)	4.41	-	4.55	-	**4.48**	bc
Kinsei (s)	4.66	-	5.28	-	**4.97**	a
RGT Accroc (w)	4.07	-	3.88	-	**3.98**	e
Genie (IGW6754) (s)	4.93	-	5.21	-	**5.07**	a
IGW6755 (s)	3.87	-	4.14	-	**4.00**	de
SWW21-0001 (w)	4.35	-	4.43	-	**4.39**	cd
Denison (s)	4.59	-	5.08	-	**4.83**	ab
Willaura (s)	3.73	-	4.21	-	**3.97**	e
V14051-165 (w)	4.32	-	4.63	-	**4.47**	bc
V14051-172 (w)	3.82	-	4.27	-	**4.04**	de
RGT Waugh (w)	3.03	-	2.62	-	**2.82**	f
RGT Cesario (w)	3.16	-	2.69	-	**2.92**	f
Mean	**4.06**	**-**	**4.23**	**-**		
LSD Cultivar p = 0.05	0.40			**P val**	<0.001	
LSD Management p = 0.05	ns			**P val**	0.347	
LSD Cultivar x Man. p = 0.05	0.57			**P val**	0.166	

Note: W = Winter Wheat, S = Spring Wheat

While a 0.62t/ha increase in yield was produced when fungicide was applied to Kinsei, it was not statistically significant. There was a trend for a small yield response to fungicide application, except for the latest developing cultivars RGT Cesario and RGT Waugh.

Table 2. Influence of fungicide on the grain quality (% protein, test weight and screenings) of wheat cultivars plus and minus fungicide.

		Grain quality assessments					
	Cultivar	**Protein (%)**		**Test Weight (kg/hL)**		**Screenings (%)**	
1.	Illabo	11.3	bcd	66.0	e	3.3	ef
2.	Scepter	12.2	a	71.0	ab	1.9	g
3.	Kinsei	10.8	cde	71.3	ab	3.4	ef
4.	RGT Accroc	11.4	bc	70.9	ab	3.1	f
5.	Genie (IGW6754)	10.7	de	72.6	a	6.7	b
6.	IGW6755	11.4	b	66.0	e	7.2	b
7.	SWW21-0001	10.6	e	68.6	cd	6.1	bc
8.	Denison	10.8	cde	72.7	a	3.0	fg
9.	Willaura	11.2	b-e	67.0	de	10.6	a
10.	V14051-165	11.1	b-e	69.6	bc	4.4	de
11.	V14051-172	10.7	de	69.3	bc	5.0	cd
12.	RGT Waugh	12.8	a	70.5	abc	2.3	fg
13.	RGT Cesario	12.1	a	70.3	bc	2.8	fg
	LSD = 0.05	0.6		2.2		1.1	

	Cultivar p-Value	<0.001		<0.001		<0.001	
1.	No Fungicide	11.4	-	69.1	-	5.1	a
2.	Full Fungicide	11.3	-	70.2	-	4.1	b
	LSD = 0.05	ns		ns		0.6	
	Disease Management p-Value	0.770		0.088		0.015	
	Disease Management x Cultivar	**Protein (%)**		**Test Weight (kg/hL)**		**Screenings (%)**	
	No Fungicide						
1.	Illabo	11.1	-	65.7	hi	3.3	g-k
2.	Scepter	12.2	-	71.1	a-d	2.0	jk
3.	Kinsei	10.9	-	69.9	c-f	4.0	e-i
4.	RGT Accroc	11.4	-	70.2	cde	3.1	g-k
5.	Genie (IGW6754)	11.0	-	71.3	a-d	8.0	bc
6.	IGW6755	11.9	-	65.0	hi	7.7	bc
7.	SWW21-0001	10.8	-	67.7	e-h	7.2	bc
8.	Denison	10.8	-	72.0	a-d	3.6	f-j
9.	Willaura	11.9	-	63.6	i	12.6	a
10.	V14051-165	10.9	-	69.9	c-f	4.2	e-h
11.	V14051-172	10.6	-	69.6	c-f	5.3	de
12.	RGT Waugh	12.6	-	70.7	b-e	2.2	jk
13.	RGT Cesario	11.9	-	71.5	a-d	2.8	h-k
	Full Fungicide						
1.	Illabo	11.6	-	66.3	ghi	3.4	f-k
2.	Scepter	12.2	-	70.9	a-d	1.8	k
3.	Kinsei	10.7	-	72.6	abc	2.8	h-k
4.	RGT Accroc	11.4	-	71.5	a-d	3.1	g-k
5.	Genie (IGW6754)	10.5	-	73.9	a	5.3	de
6.	IGW6755	11.0	-	66.9	fgh	6.7	cd
7.	SWW21-0001	10.5	-	69.4	d-g	5.0	ef
8.	Denison	10.8	-	73.4	ab	2.5	ijk
9.	Willaura	10.6	-	70.4	b-e	8.5	b
10.	V14051-165	11.2	-	69.2	d-g	4.6	efg
11.	V14051-172	10.9	-	69.0	d-g	4.6	efg
12.	RGT Waugh	12.9	-	70.3	b-e	2.5	ijk
13.	RGT Cesario	12.4	-	69.2	d-g	2.7	h-k
	LSD = 0.05	ns		3.1		1.6	
	Cultivar x Disease Mang. p-Value	0.030		0.029		0.005	

Development

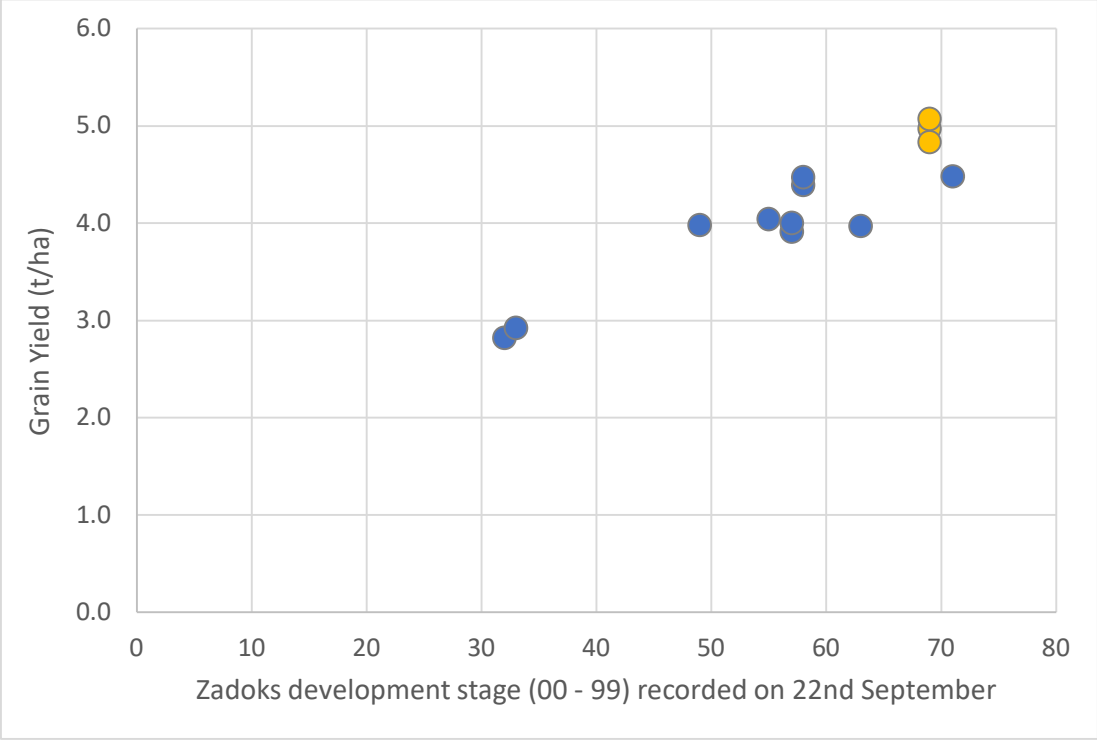

Figure 2. Influence of development stage (recorded on 22 September) on final grain yield (t/ha). (three orange markers – Denison, Kinsei and IGW6754 (Genie) the three highest yielding varieties)

Trial Inputs

Table 3. Trial input and management details (kg, g, ml/ha).

Sowing date:		**29 April**	
Harvest date:		**13 December**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	29 Apr	169kg MAP/MOP/MnSO4 (66%/29%/5% blend)	
Herbicide:	29 Apr	Triflurex 2L/ha	
		Overwatch 1.25L/ha	
Nitrogen:	12 June	55 kg N/ha	
	13 July	32 kg N/ha	
	2 Aug	23 kg N/ha	
		121 kg N/ha (incl 11 kg N/ha at sowing)	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Radial 0.84 L/ha
	GS61-71	----	Opus 0.50 L/ha

** RGT Accroc, RGT Cesario, and RGT Waugh were not treated with a third fungicide.*

WA Wheat TOS 2 (FAR WAA II W23-11-02)

Sown: 17 May 2023
Harvested: 13 December 2023
Soil Type: Forest gravel loam
Previous Crop: Canola
Cultivar: Various
FAR Code: FAR WAA II W23-11-02
GSR (Apr-Oct): 613mm

Key Points:

- *Grain yields of the mid-May sown wheats averaged 3.06t/ha with little or no response to fungicide evident in the trial.*
- *There were no visible signs of disease infection, and in general yields were lower than those achieved with the same varieties sown on 29 April.*
- *There were no significant differences in the yield performance of the spring wheat varieties tested, with the exception of IGW6755 which was significantly later developing than the other spring wheats.*
- *The lower yielding wheats were principally later flowering winter wheats, with RGT Accroc being the last to flower and overall the lowest yielding.*
- *Overall, test weights were low with an average of approximately 69.6 kg/hL.*
- *The highest yielding cultivar Genie (IGW6754) produced the highest average test weight (73.7 kg/hL), the lowest grain protein of 9.8% and the highest grain screenings of 10%.*
- *Although grain quality was on average poor with low test weights Genie (IGW6754), RGT Accroc, Denison and Kinsei all produced statistically significantly higher test weights than the control variety Illabo (64.5 kg/hL).*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – May 17 sown. (one replicate excluded as a result of waterlogging).

	Management Level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Yield t/ha**		**Yield t/ha**		**Yield t/ha**	
Illabo (w)	3.69	-	2.91	-	**3.30**	**a**
Scepter (s)	3.80	-	3.17	-	**3.49**	**a**
Kinsei (s)	3.08	-	3.65	-	**3.37**	**a**
RGT Accroc (w)	2.36	-	2.24	-	**2.30**	**c**
Genie (IGW6754) (s)	3.86	-	3.60	-	**3.73**	**a**
IGW6755 (s)	2.56	-	2.23	-	**2.39**	**c**
Denison (s)	3.57	-	2.93	-	**3.25**	**ab**
Mowhawk (w)	2.82	-	2.50	-	**2.66**	**bc**
Mean	**3.22**	**-**	**2.90**	**-**	**3.06**	
LSD Cultivar p = 0.05	0.62			**P val**	0.001	
LSD Management p = 0.05	ns			**P val**	0.636	
LSD Cultivar x Man. p = 0.05	ns			**P val**	0.645	

Table 2. Influence of fungicide on the grain quality (% protein, test weight, and screenings) of barley cultivars plus and minus fungicide.

		Grain quality assessments					
	Cultivar	**Protein (%)**		**Test Weight (kg/hL)**		**Screenings (%)**	
1.	**Illabo**	10.8	ab	64.5	d	6.1	bcd
2.	**Scepter**	9.9	d	68.2	cd	5.0	cd
3.	**Kinsei**	10.0	cd	70.1	abc	6.0	bcd
4.	**RGT Accroc**	11.5	a	73.1	ab	3.8	d
5.	**Genie (IGW6754)**	9.8	d	73.7	a	10.0	a
6.	**IGW6755**	11.5	a	68.7	bcd	6.6	bc
7.	**Denison**	10.7	bc	71.7	abc	7.8	ab
8.	**Mowhawk**	10.7	bc	67.2	cd	8.0	ab
	LSD = 0.05	0.74		4.56		2.56	
	Cultivar p-Value	<0.001		0.020		0.008	
	Disease Management						
1.	No Fungicide	10.6	-	70.4	-	6.4	-
2.	Full Fungicide	10.7	-	68.9	-	6.9	-
	LSD = 0.05	ns		ns		ns	
	Disease Management p-Value	0.679		0.480		0.761	
Disease Pressure x Cultivar							
	No Fungicide						
1.	**Illabo**	11.2	-	64.2	-	6.4	-
2.	**Scepter**	10.0	-	68.4	-	5.4	-
3.	**Kinsei**	9.7	-	69.8	-	6.5	-
4.	**RGT Accroc**	11.2	-	73.7	-	3.6	-
5.	**Genie (IGW6754)**	10.0	-	73.4	-	10.2	-
6.	**IGW6755**	11.4	-	68.4	-	7.3	-
7.	**Denison**	10.0	-	75.8	-	4.9	-
8.	**Mowhawk**	10.9	-	69.8	-	7.1	-
	Full Fungicide						
1.	**Illabo**	10.5	-	64.8	-	5.7	-
2.	**Scepter**	9.9	-	68.0	-	4.7	-
3.	**Kinsei**	10.2	-	70.3	-	5.5	-
4.	**RGT Accroc**	11.8	-	72.4	-	4.0	-
5.	**Genie (IGW6754)**	9.5	-	74.0	-	9.8	-
6.	**IGW6755**	11.5	-	69.0	-	6.0	-
7.	**Denison**	11.4	-	67.5	-	10.7	-
8.	**Mowhawk**	10.5	-	64.7	-	8.8	-
	LSD = 0.05	ns		ns		ns	
Cultivar x Disease Mang. p-Value		0.251		0.560		0.273	

Development

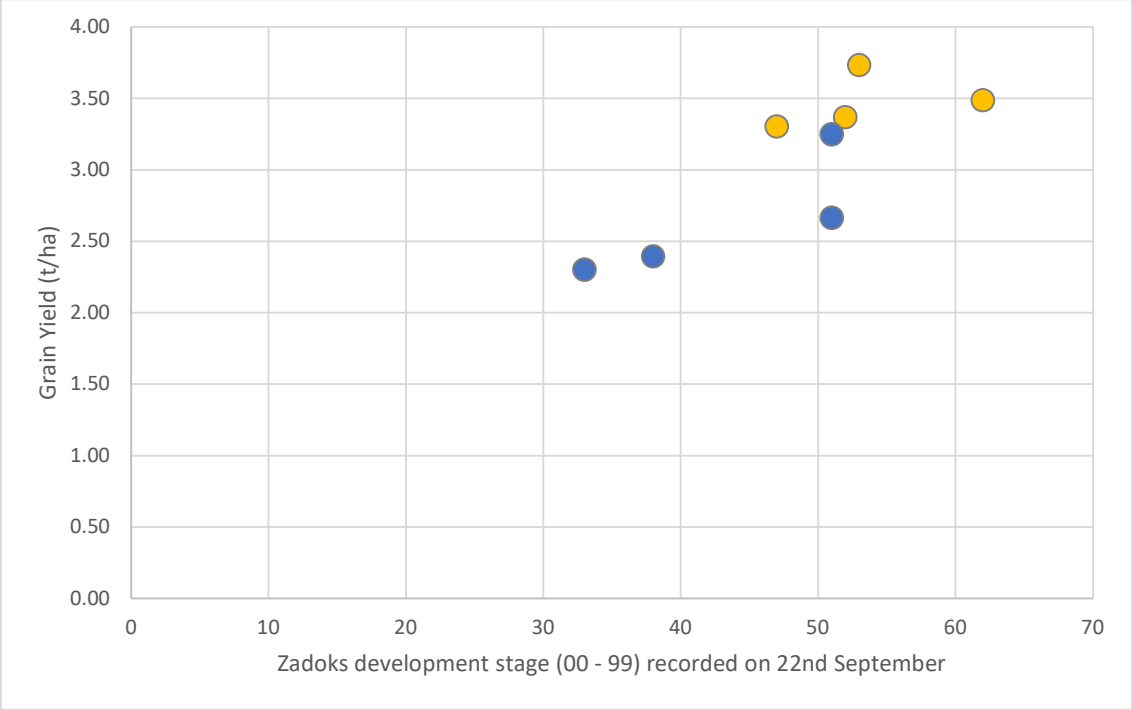

Figure 1. Influence of development stage (recorded on 22nd September) on final grain yield (t/ha). (four orange markers – Genie (IGW6754), Scepter, Kinsei and Illabo the four highest yielding varieties)

Trial Inputs

Table 3. Trial input and management details (kg, g, ml/ha).

Sowing date:		**17 May**	
Harvest date:		**13 December**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	17 May	169kg MAP/MOP (66/33 divide)	
Nitrogen:		125 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Radial 0.84 L/ha
	GS61-71	----	Opus 0.50 L/ha

WA Barley TOS 1 (FAR WAA II B23-17-01)

Sown: 29 April
Harvested: 20 November
Soil Type: Forest gravel loam
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR WAA II B23-17-01
GSR (Apr-Oct): 613mm

Key Points:

- *Drier conditions in September and October reduced yield potential and grain quality, particularly in the later developing winter barley.*
- *Minotaur was the highest yielding cultivar (6.22t/ha) giving very little response to fungicide despite the presence of low levels of disease during grain fill.*
- *Statistically there was no significant difference in the grain yield of Minotaur, RGT Planet, Rosalind and Laperouse, although the presence of net form of net blotch (NFNB) in RGT Planet led to a 0.8t/ha yield increase when a fungicide program was applied.*
- *Response to fungicide in the other varieties was much smaller; Rosalind 0.28t/ha, Laperouse 0.04t/ha and Minotaur 0.17t/ha).*
- *Best grain quality (test weight, retentions, and screenings) was given by Minotaur and Laperouse. AGTB0318 had good grain quality but higher levels of lodging than other varieties.*
- *The late April sowing date and significantly slower development (booting whilst spring barleys were at watery-milky ripe in September) resulted in poor yields with the winter barley Newton, although displayed very good resistance to disease in the region.*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide.

	Management Level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Yield t/ha**		**Yield t/ha**		**Yield t/ha**	
RGT Planet (s)	5.17	-	5.96	-	5.57	ab
Rosalind (s)	5.66	-	5.94	-	5.80	ab
Laperouse (s)	5.78	-	5.76	-	5.77	ab
Newton (w)	4.24	-	4.05	-	4.15	c
AGTB0318 (s)	4.50	-	5.58	-	5.04	b
Minotaur (s)	6.13	-	6.30	-	6.22	a
Mean	**4.91**		**5.18**		**5.04**	
LSD Cultivar p = 0.05	0.88			**P val**	<0.001	
LSD Management p = 0.05	N.S.			**P val**	0.439	
LSD Cultivar x Man. p = 0.05	N.S.			**P val**	0.667	

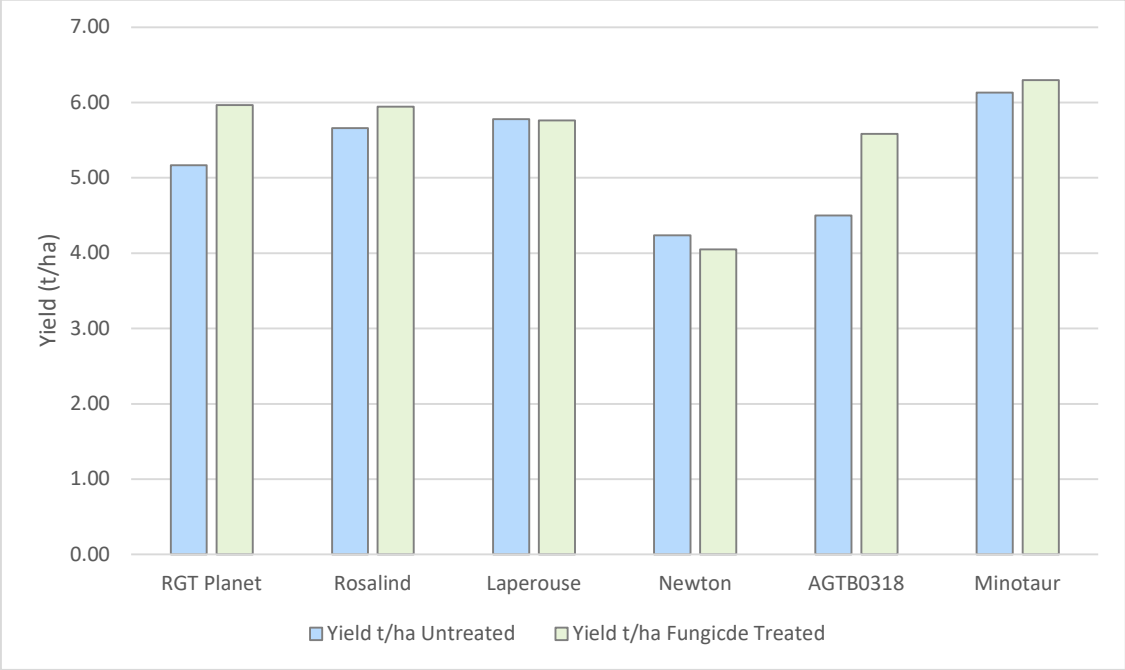

Figure 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide.

Table 2. Influence of fungicide on the grain quality (protein, test weight, retentions and screenings) of barley cultivars plus and minus fungicide.

		Grain quality assessments							
	Cultivar	**Protein (%)**		**Test Weight (kg/hL)**		**Retentions (%)**		**Screenings (%)**	
1.	RGT Planet	12.5	c	57.1	c	69.6	b	7.6	b
2.	Rosalind	12.8	bc	60.9	b	77.7	b	4.9	c
3.	Laperouse	12.5	bc	65.3	a	90.4	a	1.9	d
4.	Newton	14.2	a	49.5	d	41.5	c	12.9	a
5.	AGTB0318	13.0	bc	53.9	c	88.4	a	4.1	cd
6.	Minotaur	13.2	b	63.0	ab	90.9	a	2.0	d
	LSD = 0.05	0.68		3.44		10.43		2.37	
	Cultivar p-Value	<0.001		<0.001		<0.001		<0.001	
	Disease Management								
1.	No Fungicide	13.1	-	57.6	-	73.6	-	6.5	-
2.	Full Fungicide	12.9	-	58.9	-	79.3	-	4.6	-
	LSD = 0.05	ns		ns		ns		ns	
	Disease Management p-Value	0.73		0.36		0.35		0.22	
Disease Pressure x Cultivar									
	No Fungicide								
1.	RGT Planet	12.5	-	55.6	-	62.4	-	10.0	-
2.	Rosalind	12.9	-	59.4	-	70.9	-	6.9	-
3.	Laperouse	12.5	-	65.7	-	90.2	-	2.0	-
4.	Newton	14.1	-	49.1	-	40.2	-	13.2	-
5.	AGTB0318	13.7	-	53.5	-	86.5	-	4.8	-
6.	Minotaur	13.1	-	62.5	-	91.2	-	2.1	-
	Full Fungicide								
1.	RGT Planet	12.4	-	58.6	-	76.7	-	5.3	-
2.	Rosalind	12.7	-	62.4	-	84.4	-	3.0	-
3.	Laperouse	12.5	-	64.9	-	90.6	-	1.7	-
4.	Newton	14.3	-	49.9	-	42.9	-	12.5	-
5.	AGTB0318	12.2	-	54.3	-	90.3	-	3.4	-
6.	Minotaur	13.2	-	63.5	-	90.6	-	1.9	-
	LSD = 0.05	*ns*		*ns*		*ns*		*ns*	
	Cultivar x Disease Mang. p-Value	0.15		0.85		0.54		0.26	

Disease Assessment data

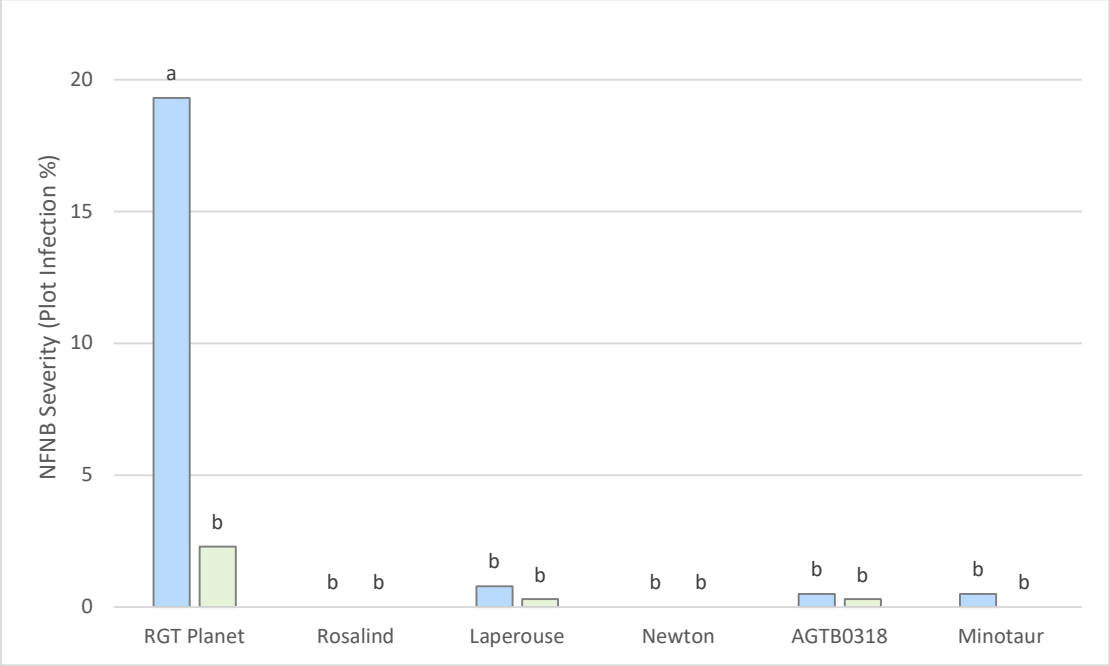

Figure 2. Influence of variety and fungicide on NFNB disease levels recorded at the end of flowering GS69 (% plot infection).

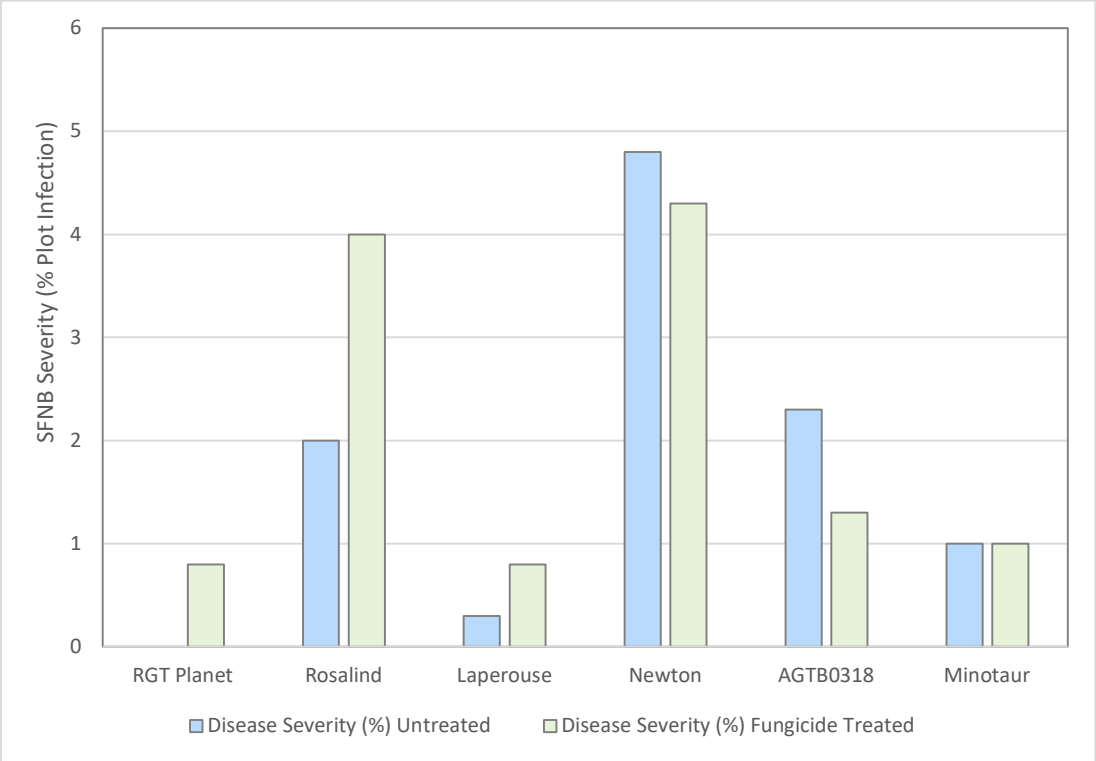

Figure 3. Influence of variety and fungicide on SFNB disease levels recorded at the end of flowering GS69 (% plot infection) - No significant differences.

Trial Inputs

Table 3. Trial input and management details (kg, g, ml/ha).

Sowing date:		**29 April**	
Harvest date:		**20 November**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	29 Apr	169kg MAP/MOP/MnSO4 (66%/29%/5% blend)	
Herbicide:	29 Apr	Triflurex 2L/ha	
		Overwatch 1.25L/ha	
Nitrogen:	12 June	55 kg N/ha	
	13 July	32 kg N/ha	
	2 Aug	23 kg N/ha	
Fungicide:		Full Fungicide Program	No Fungicide Program
	GS31	Prosaro 0.30 L/ha	---
	GS39-51	Radial 0.84 L/ha	---
	GS59-69	Opus 0.50 L/ha*	---
PGR:	GS31	Moddus Evo 200 ml/ha (Rosalind only)	

** Newton was not treated with a third fungicide.*

WA Barley TOS 2 (FAR WAA II B23-18-02)

Sown: 17 May
Harvested: 20 November
Soil Type: Forest Gravel loa
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR WAA II B23-18-02
GSR (Apr-Oct): 613mm

Key Points:

- *Sown in mid-May the highest yield was approximately 0.35t/ha lower than the highest barley yields recorded from the neighbouring 29 April sowing date (see April sown barley yield results).*
- *The highest yields in the trial were recorded with Firefoxx (5.88t/ha) and Neo (5.73 t/ha) which were significantly higher yielding than all other varieties except Rosalind.*
- *Apart from RGT Planet (0.43t/ha) and RP19034 (0.95t/ha), which both suffered from net form of net blotch, grain yield responses to fungicide application (GS31 & GS49) were small.*
- *Laureate and IGB21130 were later developing varieties (early head emergence when other varieties were at full head emergence) and appeared to be impacted to greater extent by the drier conditions during October.*
- *Poorer yields were in general associated with longer season phenology, lower test weights, higher screenings and lower retentions.*
- *There was a significant interaction between the influence of fungicide and variety on grain screenings with varieties such RP 19034 and RGT Planet showing large improvements in screening % when fungicides were applied, compared to other varieties such as Firefoxx.*
- *Overall, with the exception of NFNB in RGT Planet and RP 19034 disease levels were very low.*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – May 17 sown.

	Management Level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Yield t/ha**		**Yield t/ha**		**Yield t/ha**	
RGT Planet (s)	4.39	-	4.72	-	4.55	cd
Rosalind (s)	5.51	-	5.69	-	5.60	ab
Laureate (s)	4.31	-	4.46	-	4.39	d
Firefoxx (s)	5.81	-	5.95	-	5.88	a
IGB21130 B5 (s)	4.48	-	4.85	-	4.66	cd
Neo (IGB22102T) (s)	5.75	-	5.72	-	5.73	ab
Minotaur (s)	5.43	-	5.52	-	5.48	b
Asteroid (s)	4.46	-	4.55	-	4.50	cd
RP 19034 (s)	4.35	-	5.30	-	4.83	c
RP 19013 (s)	4.62	-	5.03	-	4.82	c
Mean	**4.91**		**5.18**		**5.04**	
LSD Cultivar p = 0.05	0.40			**P val**	<0.001	
LSD Management p = 0.05	N.S.			**P val**	0.128	
LSD Cultivar x Man. p = 0.05	N.S.			**P val**	0.470	

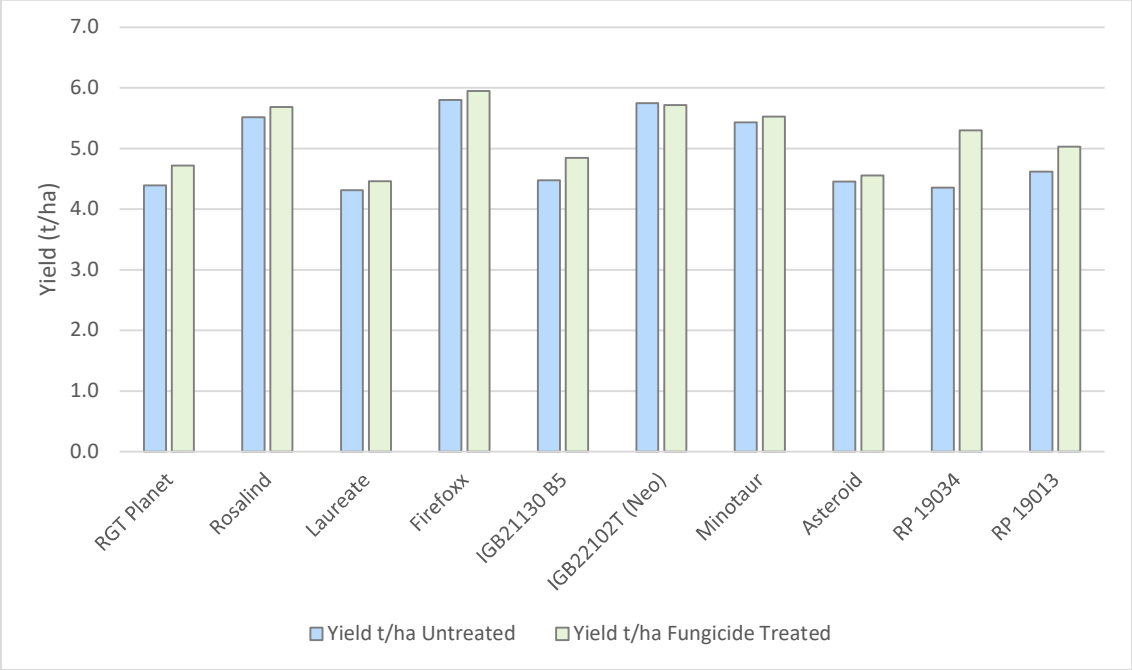

Figure 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – May 17 sown.

Table 2. Influence of fungicide on the grain quality (% protein, test weight, retentions, and screenings) of barley cultivars plus and minus fungicide.

		Grain quality assessments							
	Cultivar	**Protein (%)**		**Test Weight (kg/hL)**		**Retentions (%)**		**Screenings (%)**	
1.	RGT Planet	11.3	-	55.9	b	65.7	b	8.9	b
2.	Rosalind	11.7	-	61.9	a	81.8	a	3.9	c
3.	Laureate	11.3	-	50.5	d	60.8	bc	10.5	b
4.	Firefoxx	11.6	-	63.5	a	89.6	a	2.0	c
5.	IGB21130 B5	11.1	-	51.7	cd	61.4	bc	12.1	ab
6.	Neo (IGB22102T)	11.2	-	56.0	b	84.0	a	3.8	c
7.	Minotaur	11.6	-	60.5	a	80.0	a	4.4	c
8.	Asteroid	11.2	-	51.3	cd	50.4	c	15.2	a
9.	RP 19034	11.7	-	53.4	bcd	64.1	b	11.0	ab
10.	RP 19013	11.7	-	53.8	bc	56.1	bc	13.1	ab
	LSD = 0.05	ns		3.10		11.15		4.38	
	Cultivar p-Value	0.112		<0.001		<0.001		<0.001	
	Disease Management								
1.	No Fungicide	11.6	-	55.7	-	65.1	-	10.0	a
2.	Full Fungicide	11.3	-	56.0	-	73.7	-	7.0	b
	LSD = 0.05	ns		ns		ns		2.99	
	Disease Management p-Value	0.424		0.622		0.072		0.048	
Disease Pressure x Cultivar									
	No Fungicide								
1.	RGT Planet	11.4	-	56.1	-	66.1	-	8.3	-
2.	Rosalind	11.9	-	62.2	-	78.3	-	5.1	-
3.	Laureate	11.4	-	51.4	-	57.5	-	11.8	-
4.	Firefoxx	11.9	-	63.8	-	91.7	-	1.7	-
5.	IGB21130	11.2	-	53.9	-	57.4	-	13.0	-
6.	Neo (IGB22102T)	11.5	-	56.1	-	80.0	-	4.7	-
7.	Minotaur	11.6	-	59.3	-	74.5	-	5.9	-
8.	Asteroid	11.4	-	50.6	-	47.3	-	16.5	-
9.	RP 19034	11.8	-	50.2	-	47.0	-	18.2	-
10.	RP 19013	11.8	-	53.3	-	51.5	-	14.7	-
	Full Fungicide								
1.	RGT Planet	11.3	-	55.7	-	65.2	-	9.4	-
2.	Rosalind	11.5	-	61.7	-	85.3	-	2.7	-
3.	Laureate	11.3	-	49.6	-	64.2	-	9.2	-
4.	Firefoxx	11.4	-	63.1	-	87.4	-	2.2	-
5.	IGB21130	11.0	-	49.4	-	65.4	-	11.2	-
6.	Neo (IGB22102T)	11.0	-	55.9	-	88.1	-	2.9	-
7.	Minotaur	11.6	-	61.8	-	85.5	-	2.8	-
8.	Asteroid	11.0	-	52.1	-	53.6	-	13.9	-
9.	RP 19034	11.6	-	56.6	-	81.1	-	3.9	-
10.	RP 19013	11.7	-	54.3	-	60.8	-	11.5	-
	LSD = 0.05	ns		ns		ns		ns	
	Cultivar x Disease Mang. p-Value	0.990		0.106		0.121		0.080	

Disease Assessment data

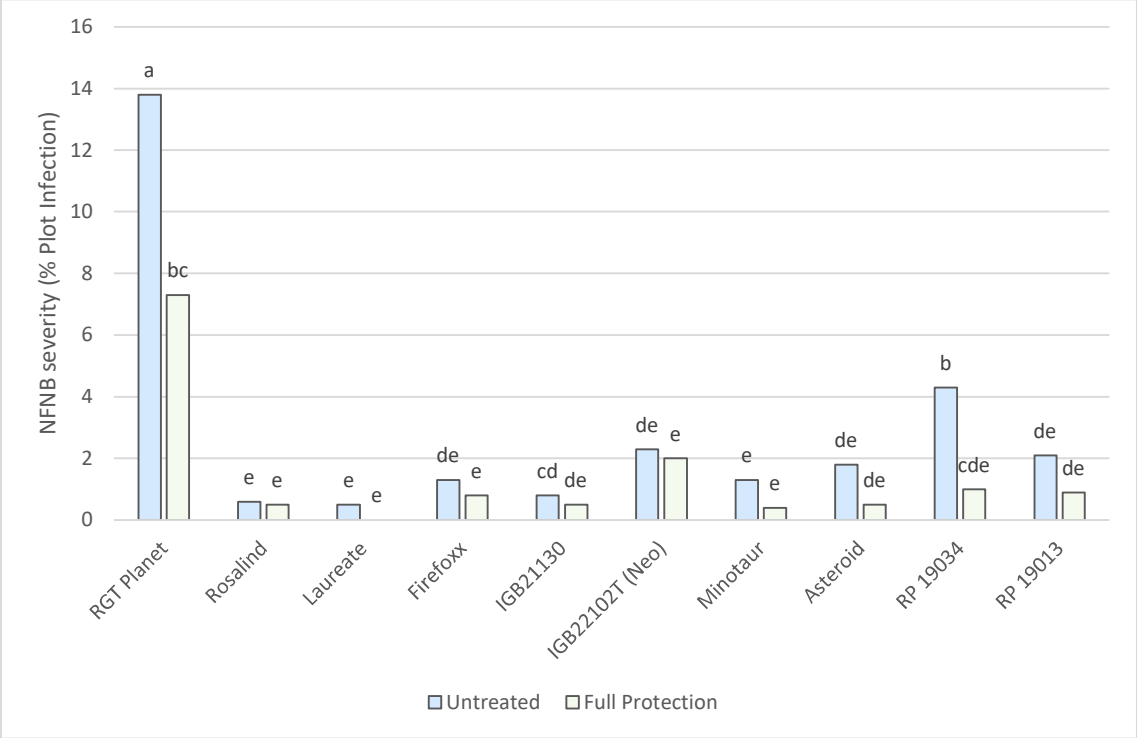

Figure 2. Net form of net blotch (NFNB) disease severity assessed 15 September – based on whole plot infection.

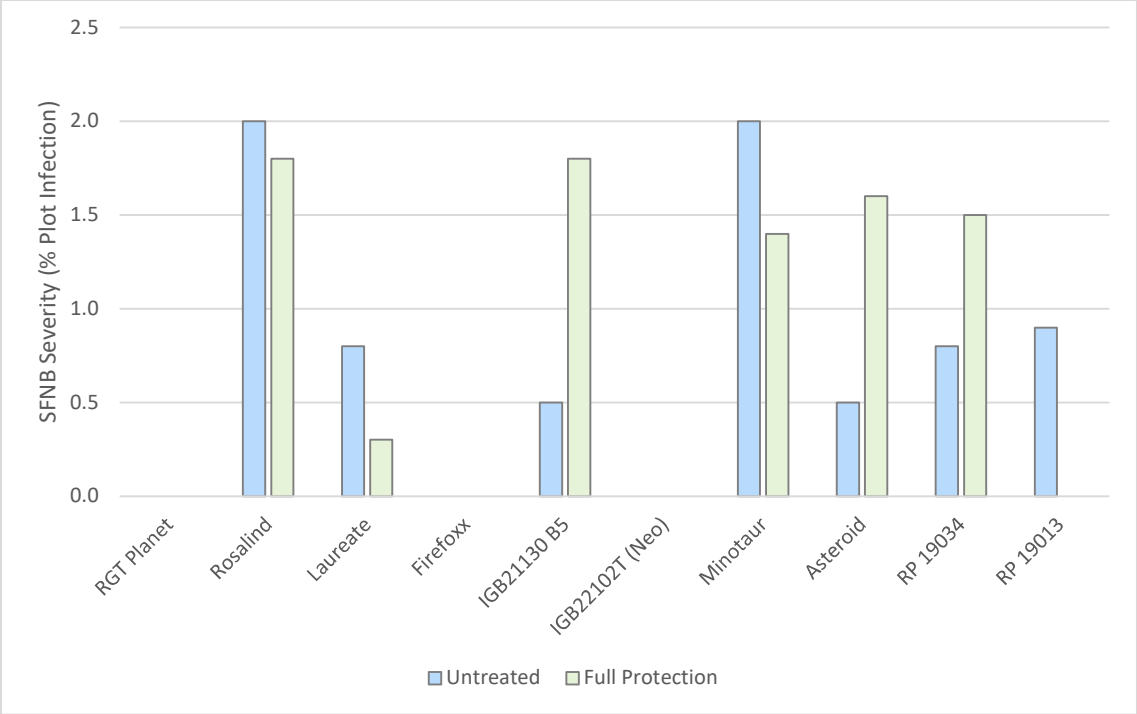

Figure 3. Spot form net blotch (SFNB) disease severity assessed 15 September – based on whole plot infection.

Trial Inputs

Table 3. Trial input and management details (kg, g, ml/ha).

Sowing date:		**17 May**	
Harvest date:		**20 November**	
Seed rate:		180 seeds/m2	
Basal fertiliser:	17 May	169kg MAP/MOP/MnSO4 (66/29/5 divide)	
Herbicide:	17 May	Triflurex 2L/ha	
		Overwatch 1.25L/ha	
Nitrogen:	12 June	55 kg N/ha	
	13 July	32 kg N/ha	
	2 Aug	23 kg N/ha	
Fungicide:		Full Fungicide Program	No Fungicide Program
	GS31	Prosaro 0.30 L/ha	---
	GS39-51	Radial 0.84 L/ha	---
PGR:		nil	

Hagley, Tasmania

Tas Wheat (FAR TAS II W23-12)

Sown: 26 April 2023
Harvested: 26 January 2024
Soil Type: Chromasol
Previous Crop: Poppies

Cultivar: Various
FAR Code: FAR TAS II W23-12
GSR (Apr-Nov): 562mm

Key Points:

- *There was a significant yield interaction (<0.001) between variety and fungicide application with FAR SW1, RGT Waugh and Reflection, all giving less than 0.9t/ha response to fungicide in contrast to RGT Accroc which gave a 4.63t/ha yield response to fungicide.*
- *The highest yielding variety in the trial was FAR WW2 which was significantly superior to all other varieties tested, yielding just over 13.5t/ha.*
- *Severe stripe rust infection from early in the season reduced the yield of untreated Rockstar below 1t/ha, but was also uncontrollable under the full protection program based on three fungicides.*
- *Lower levels of Septoria tritici blotch (STB) were also present and tended to be more problematic where stripe rust infection was lower e.g. RGT Relay.*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of wheat cultivars plus and minus fungicide. *(Provisional moisture meter readings – until full analysis is available).*

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
Anapurna (w)	10.94 cd	10.35 de	**10.65**
Rockstar (s)	0.82 i	3.05 h	**1.93**
RGT Accroc (w)	3.62 h	8.25 fg	**5.93**
Reflection (w)	10.94 cd	11.60 bc	**11.27**
RGT Relay (w)	9.27 ef	10.78 cd	**10.02**
RGT Waugh (w)	11.48 bcd	12.29 b	**11.89**
FAR WW2 (w)	12.42 b	13.67 a	**13.05**
FAR SW1 (s)	7.12 g	7.38 g	**7.25**
Mean	**8.33**	**9.67**	**9.00**
LSD Cultivar p = 0.05	0.87	**P val**	<0.001
LSD Management p = 0.05	1.21	**P val**	0.038
LSD Cultivar x Man. p = 0.05	1.23	**P val**	<0.001

Note: w = Winter Wheat, s = Spring Wheat

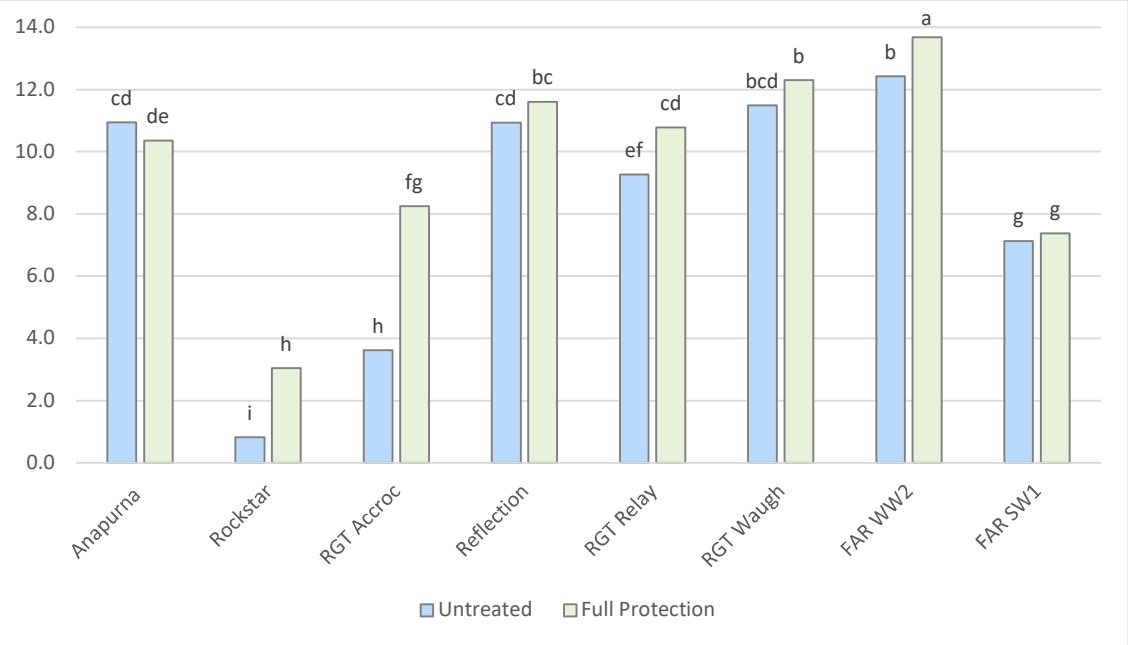

Figure 1. Influence of cultivar and fungicide on grain yield (t/ha), harvested on 26 January.

Table 2. Influence of fungicide and cultivar on the protein (%) and test weights (kg/hL) of wheat cultivars plus and minus fungicide – 26 January harvested.

	Management Level									
	Untreated	Full protection	Mean		Untreated	Full protection	Mean			
Cultivar	Protein %	Protein %	Protein %		Test weight kg/hL	Test weight kg/hL	Test weight kg/hL			
Anapurna	12.5 -	12.6 -	**12.6**	**c**	76.7 a	77.1 a	**76.9**	**a**		
Rockstar	13.1 -	13.6 -	**13.3**	**b**	48.6 e	55.3 d	**51.9**	**e**		
RGT Accroc	12.0 -	11.2 -	**11.6**	**d**	57.9 c	69.6 b	**63.8**	**d**		
Reflection	10.7 -	11.2 -	**10.9**	**e**	74.9 a	74.9 a	**74.9**	**b**		
RGT Relay	11.2 -	11.3 -	**11.2**	**de**	71.8 b	71.6 b	**71.7**	**c**		
RGT Waugh	12.5 -	12.7 -	**12.6**	**c**	75.9 a	75.6 a	**75.7**	**ab**		
FAR WW2	11.0 -	11.0 -	**11.0**	**e**	75.7 a	75.0 a	**75.3**	**ab**		
FAR SW1	14.5 -	14.0 -	**14.3**	**a**	76.4 a	76.0 a	**76.2**	**ab**		
Mean	**12.2** -	**12.2** -	**12.2**		**69.7** -	**71.9** -	**70.8**			
Cultivar	**LSD p = 0.05**	0.5	**P val**	<0.001	**LSD p = 0.05**	1.8	**P val**	<0.001		
Management	**LSD p = 0.05**	ns	**P val**	0.931	**LSD p = 0.05**	ns	**P val**	0.076		
Cultivar x Man.	**LSD p = 0.05**	ns	**P val**	0.078	**LSD p = 0.05**	2.5	**P val**	<0.001		

Table 3. Influence of fungicide and cultivar on the screenings (% < 2.2mm) of wheat cultivars (26 January) and the effect of cultivar on phenology (10 November).

	10 November	Management Level		
	Growth Stage	Untreated	Full protection	Mean
Cultivar	Zadoks 0-100	Screenings %	Screenings %	Screenings %
Anapurna	59	2.5 c-g	2.1 efg	**2.3**
Rockstar	65	9.6 a	5.1 b	**7.3**
RGT Accroc	59	5.0 b	1.7 g	**3.4**
Reflection	37	5.2 b	5.6 b	**5.4**
RGT Relay	38	3.3 c	3.2 cd	**3.2**
RGT Waugh	42	2.3 d-g	1.9 fg	**2.1**
FAR WW2	55	2.8 cde	2.7 c-f	**2.7**
FAR SW1	39	2.9 cde	3.3 c	**3.1**
	Mean	**4.2**	**3.2**	**3.7**
	Cultivar	**LSD p = 0.05** 0.63	**P val**	<0.001
	Management	**LSD p = 0.05** 0.49	**P val**	0.007
	Cultivar x Man.	**LSD p = 0.05** 0.89	**P val**	<0.001

Disease Assessment data

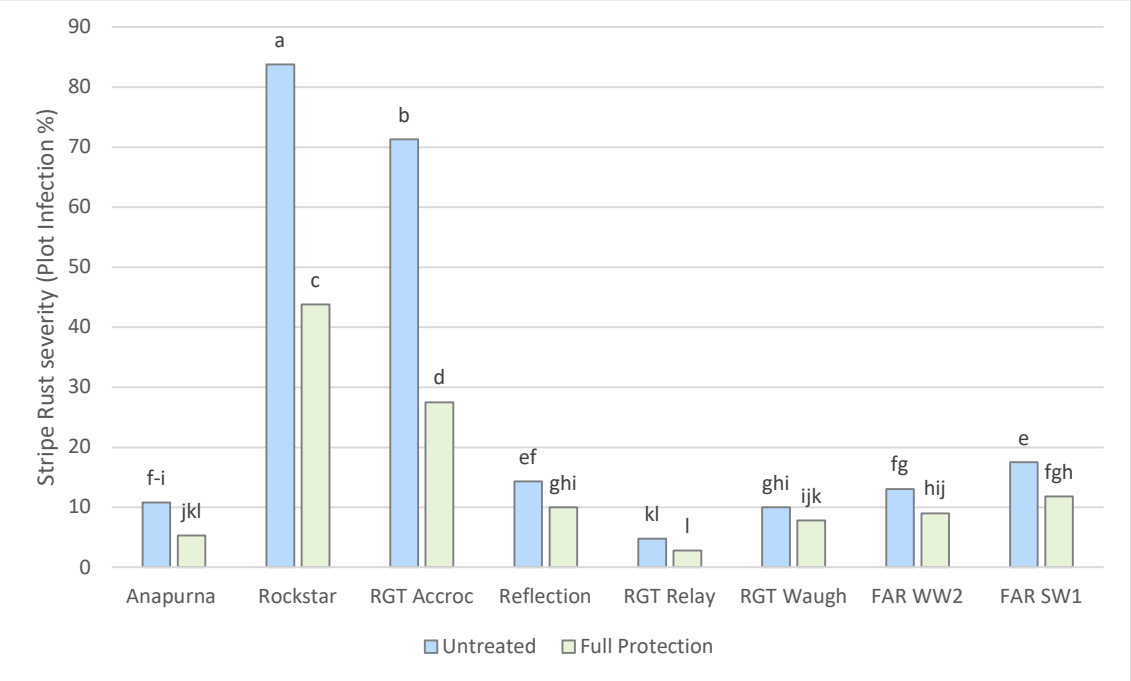

Figure 2. Influence of variety and fungicide management on Stripe Rust severity, assessed on 11 October 2023.

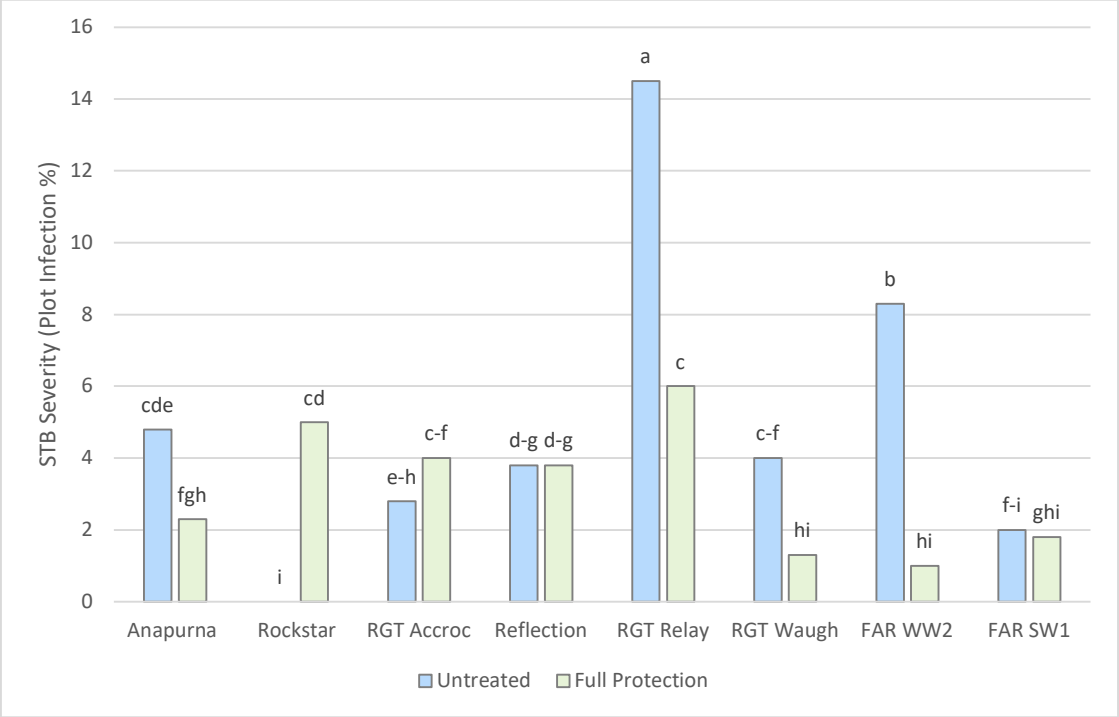

Figure 3. Influence of variety and fungicide management on Septoria tritici blotch (STB) severity, assessed on 11 October 2023.

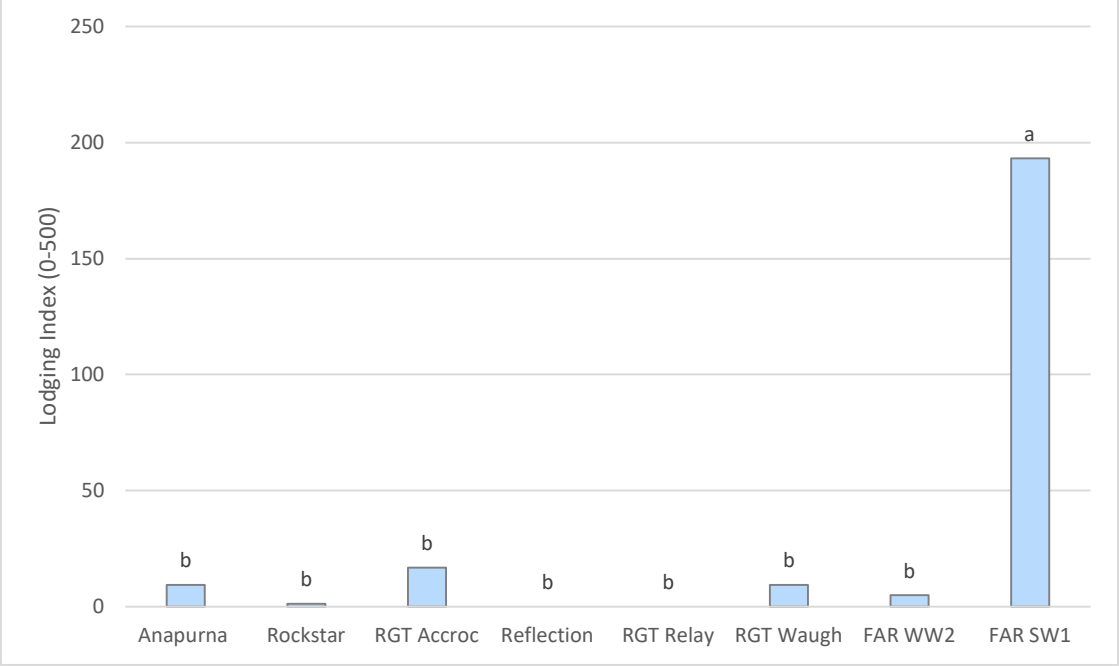

Figure 4. Influence of variety on lodging index (0-500), assessed on 26 January 2024 at harvest maturity.

Trial Inputs

Table 4. Trial input and management details (kg, g, ml/ha).

Sowing date:		**26 April**	
Harvest date:		**26 January**	
Seed rate:		180 seeds/m2	
Basal fertiliser:		100 kg MAP	
Nitrogen:	28 July	46 kg N/ha	
	29 Aug	92 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Opus 0.50 L/ha
	GS39	----	Radial 0.84 L/ha
	GS59-61	----	Prosaro 0.30 L/ha

Tas Barley (FAR TAS II B23-19)

Sown: 6 September 2023
Harvested: 26 January 2024
Soil Type: Chromasol
Previous Crop: Poppies

Cultivar: Various
FAR Code: FAR TAS II B23-19
GSR (Apr-Nov): 562mm

Key Points:

- *Yields ranged from 9.57 – 12.07t/ha depending on variety and fungicide application.*
- *There was a significant response to fungicide (which averaged 0.42t/ha across the varieties), principally as a result of net form of net blotch (NFNB) infection (depending on variety).*
- *NFNB infection was most significant in RGT Planet and FAR SB2.*
- *The coded European barleys FAR SB2, FAR SB1, and FAR SB5 were significantly higher yielding than all other varieties tested (except AGTB0318), with each of these varieties exceeding 11.8t/ha when treated with fungicide.*
- *Varieties did vary in grain quality (protein, retentions, screenings), but differences were relatively small.*
- *Brackling was highest in Rosalind and lodging was highest in AGTB0318, but neither was a major constraint in the trial.*
- *Minotaur and Rosalind were the lowest yielding of treated crops; these shorter season Australian varieties which are photoperiod sensitive appeared less able to capitalise on the ideal growing conditions.*

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

Table 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – 26 January harvested.

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
RGT Planet (s)	10.89 -	11.80 -	**11.34 c**
Rosalind (s)	11.29 -	11.34 -	**11.31 c**
AGTB0318 (s)	11.17 -	11.83 -	**11.50 bc**
Minotaur (s)	9.57 -	9.92 -	**9.74 d**
FAR SB2 (s)	11.38 -	11.81 -	**11.60 abc**
FAR SB1 (s)	11.54 -	12.07 -	**11.81 ab**
FAR SB5 (s)	11.94 -	11.91 -	**11.93 a**
Mean	**11.11 b**	**11.53 a**	**11.32**
LSD Cultivar p = 0.05	0.41	**P val**	<0.001
LSD Management p = 0.05	0.30	**P val**	0.021
LSD Cultivar x Man. p = 0.05	ns	**P val**	0.290

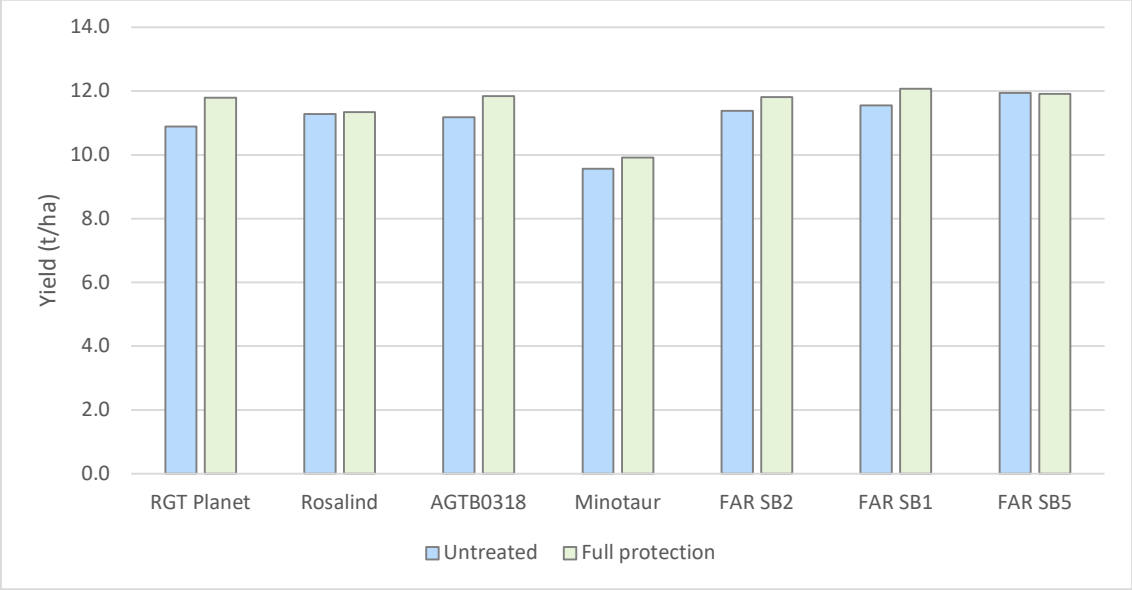

Figure 1. Influence of fungicide on the grain yield (t/ha) of barley cultivars plus and minus fungicide – 7 September sown.

Table 2. Influence of fungicide on the protein (%) and test weights (kg/hL) of barley cultivars plus and minus fungicide – 26 January harvested.

	Management Level					
	Untreated	Full protection	Mean	Untreated	Full protection	Mean
Cultivar	Protein %	Protein %	Protein %	Test weight kg/hL	Test weight kg/hL	Test weight kg/hL
RGT Planet	12.0 -	11.6 -	**11.8 b**	65.1 -	65.3 -	**65.2 b**
Rosalind	12.8 -	12.4 -	**12.6 a**	65.6 -	66.3 -	**66.0 ab**
AGTB0318	12.3 -	12.0 -	**12.1 b**	63.1 -	63.2 -	**63.2 c**
Minotaur	12.5 -	12.7 -	**12.6 a**	66.2 -	66.1 -	**66.1 a**
FAR SB2	12.0 -	11.8 -	**11.9 b**	65.2 -	65.8 -	**65.5 ab**
FAR SB1	12.1 -	11.8 -	**11.9 b**	64.9 -	66.2 -	**65.5 ab**
FAR SB5	11.5 -	11.5 -	**11.5 c**	65.4 -	66.0 -	**65.7 ab**
Mean	**12.2 -**	**12.0 -**	**12.1**	**65.1 -**	**65.6 -**	**65.3**
Cultivar	**LSD p = 0.05** 0.34		**P val** <0.001	**LSD p = 0.05** 0.84		**P val** <0.001
Management	**LSD p = 0.05** ns		**P val** 0.408	**LSD p = 0.05** ns		**P val** 0.225
Cultivar x Man.	**LSD p = 0.05** ns		**P val** 0.467	**LSD p = 0.05** ns		**P val** 0.675

Table 3. Influence of fungicide on the retention (% > 2.5mm) and screenings (% < 2.2mm) of barley cultivars plus and minus fungicide – 26 January harvested.

	Management Level					
	Untreated	Full protection	Mean	Untreated	Full protection	Mean
Cultivar	Retention %	Retention %	Retention %	Screenings %	Screenings %	Screenings %
RGT Planet	92.2 -	93.4 -	**92.8 cd**	2.0 -	1.7 -	**1.9 ab**
Rosalind	92.7 -	92.4 -	**92.5 d**	2.0 -	2.1 -	**2.0 a**
AGTB0318	94.8 -	95.5 -	**95.1 ab**	1.7 -	1.3 -	**1.5 bc**
Minotaur	93.6 -	94.7 -	**94.2 bc**	2.0 -	1.8 -	**1.9 ab**
FAR SB2	92.2 -	94.1 -	**93.2 cd**	2.0 -	1.4 -	**1.7 abc**
FAR SB1	95.6 -	96.9 -	**96.2 a**	1.3 -	0.9 -	**1.1 d**
FAR SB5	93.8 -	94.8 -	**94.3 bc**	1.5 -	1.3 -	**1.4 cd**
Mean	**93.6 -**	**94.5 -**	**94.0**	**1.8 a**	**1.5 b**	**1.6**
Cultivar	**LSD p = 0.05**	1.57	**P val** <0.001	**LSD p = 0.05**	0.42	**P val** <0.001
Management	**LSD p = 0.05**	ns	**P val** 0.079	**LSD p = 0.05**	0.29	**P val** 0.047
Cultivar x Man.	**LSD p = 0.05**	ns	**P val** 0.872	**LSD p = 0.05**	ns	**P val** 0.703

Table 4. Influence of fungicide and cultivar on crop lodging (0-500) and brackling (%) - assessed 26 January.

	Management Level					
	Untreated	Full protection	Mean	Untreated	Full protection	Mean
Cultivar	Lodging (0-500)	Lodging (0-500)	Lodging (0-500)	Brackling (%)	Brackling (%)	Brackling (%)
RGT Planet	46.3 -	50.0 -	**48.1 ab**	27.5 -	18.8 -	**23.1 ab**
Rosalind	28.8 -	66.3 -	**47.5 ab**	45.0 -	22.5 -	**33.8 a**
AGTB0318	105.0 -	60.0 -	**82.5 a**	16.3 -	21.3 -	**18.8 bc**
Minotaur	5.0 -	5.0 -	**5.0 c**	13.8 -	5.0 -	**9.4 c**
FAR SB2	51.3 -	86.3 -	**68.8 a**	21.3 -	16.3 -	**18.8 bc**
FAR SB1	27.5 -	15.0 -	**21.3 bc**	17.5 -	10.0 -	**13.8 bc**
FAR SB5	35.0 -	15.0 -	**25.0 bc**	13.8 -	13.8 -	**13.8 bc**
Mean	**42.7 -**	**42.5 -**	**42.6**	**22.1 -**	**15.4 -**	**18.8**
Cultivar	**LSD p = 0.05**	35.1	**P val** <0.001	**LSD p = 0.05**	11.2	**P val** 0.003
Management	**LSD p = 0.05**	ns	**P val** 0.986	**LSD p = 0.05**	ns	**P val** 0.210
Cultivar x Man.	**LSD p = 0.05**	ns	**P val** 0.223	**LSD p = 0.05**	ns	**P val** 0.326

Disease Assessment data

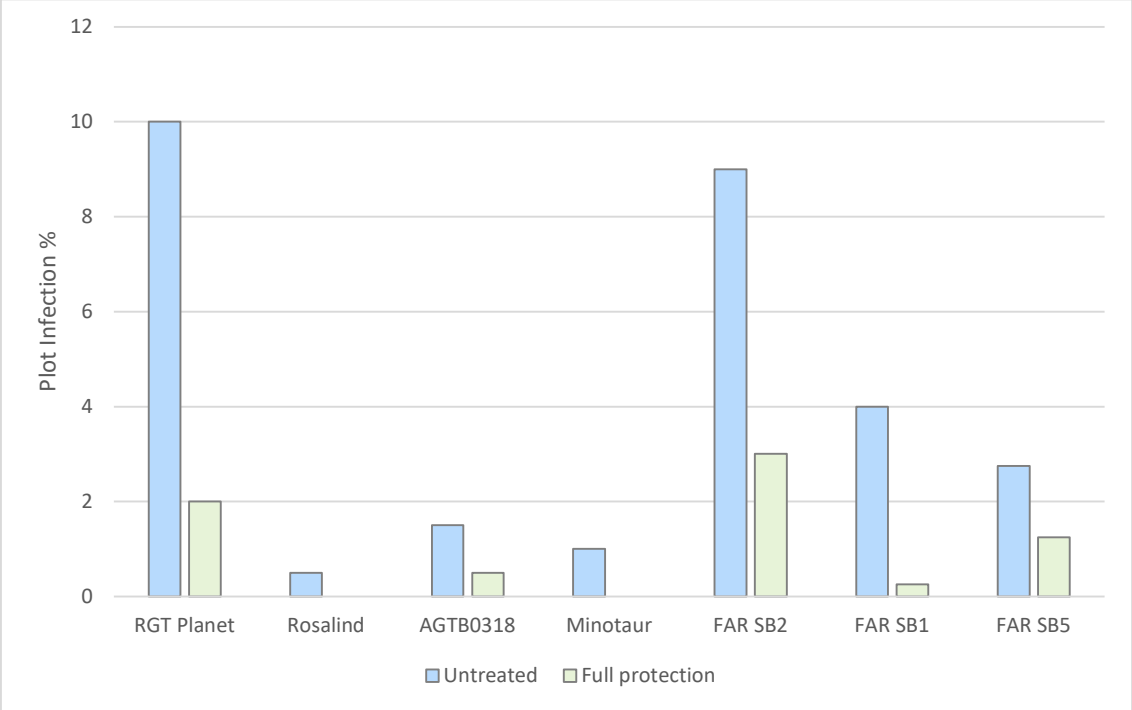

Figure 2. Influence of fungicide and cultivar on the plot infection % of net form of net blotch (NFNB) – assessed 6 December, GS75-83. Cultivar P value = 0.007, LSD = 2.4, Management P value = 0.295, Cult. x Man. P value= 0.162.

Trial Inputs

Table 5. Trial input and management details (kg, g, ml/ha).

Sowing date:		**6 September**	
Harvest date:		**26 January**	
Seed rate:		180 seeds/m2	
Basal fertiliser:		100 kg MAP	
Nitrogen:	17 Oct	92 kg N/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator Xpro 0.42 L/ha

Meteorological Data

Gnarwarre, Victoria

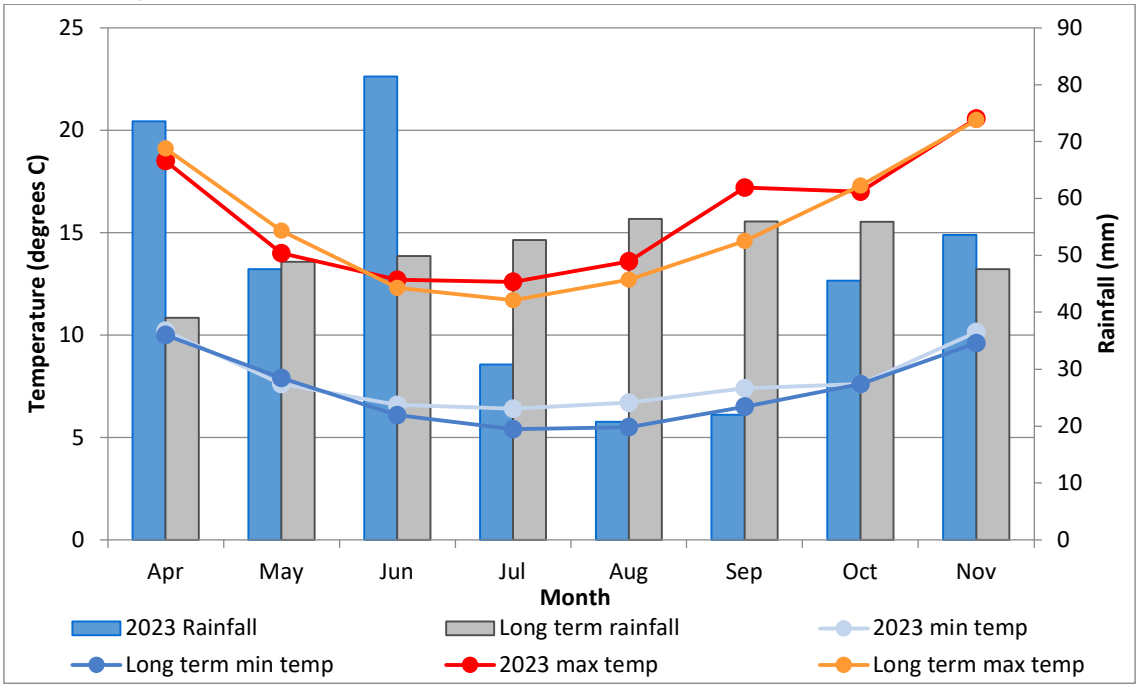

Figure 1. 2023 growing season rainfall and long-term rainfall recorded at Winchelsea Post Office (1898 -2023) and long-term min and max temperatures recorded at Mount Gellibrand (2000 to 2023) for the growing season (April to November). *Rainfall April to November = 375.4mm.*

Millicent, SA

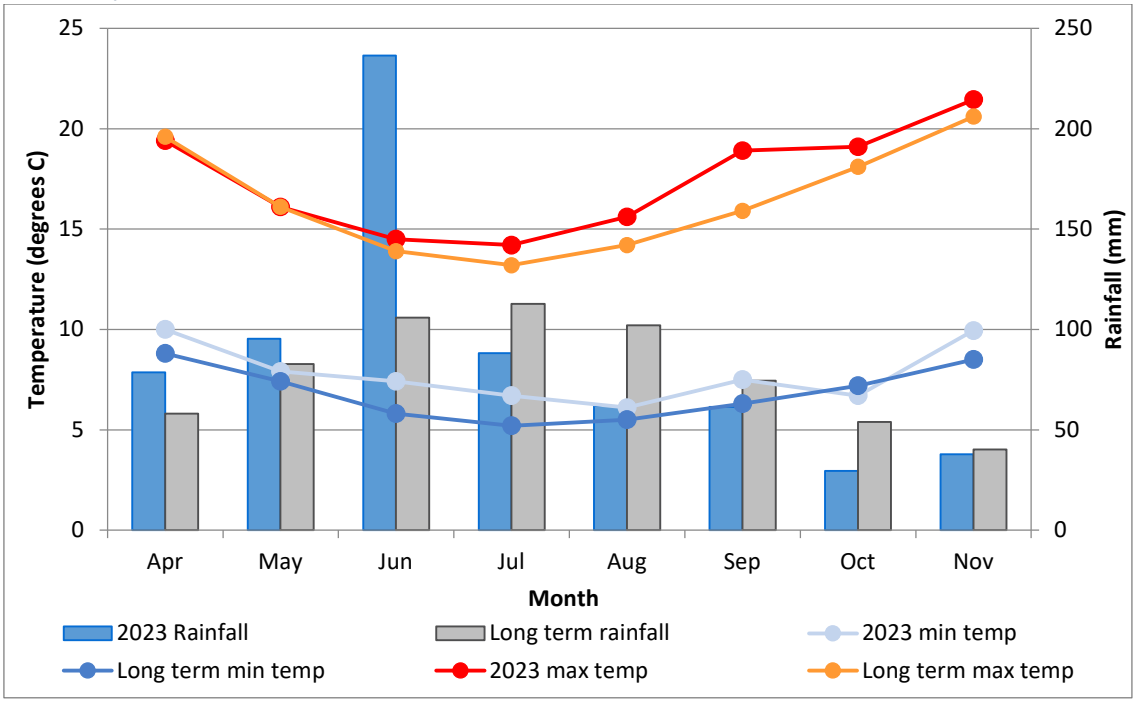

Figure 2. 2023 growing season rainfall and long-term rainfall recorded at Millicent (1878-2023). 2023 min and max temperatures, and long-term temperatures recorded at Mount Gambier (1942-2023). *Growing season rainfall April to October = 689mm.*

Wallendbeen NSW

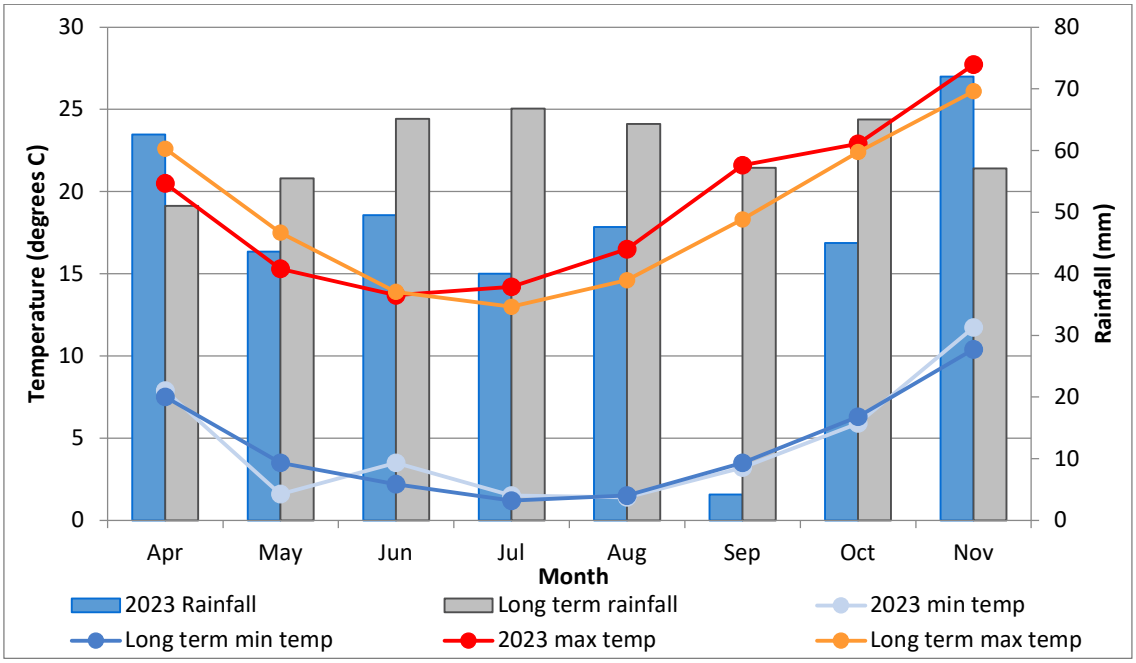

Figure 3. 2023 growing season rainfall and long-term rainfall recorded at Wallendbeen (Corang) (1914 -2023) and long-term min and max temperatures recorded at Cootamundra Airport (1995 to 2023) for the growing season (April to November). *Rainfall April to November = 364.5mm.*

Frankland River, WA

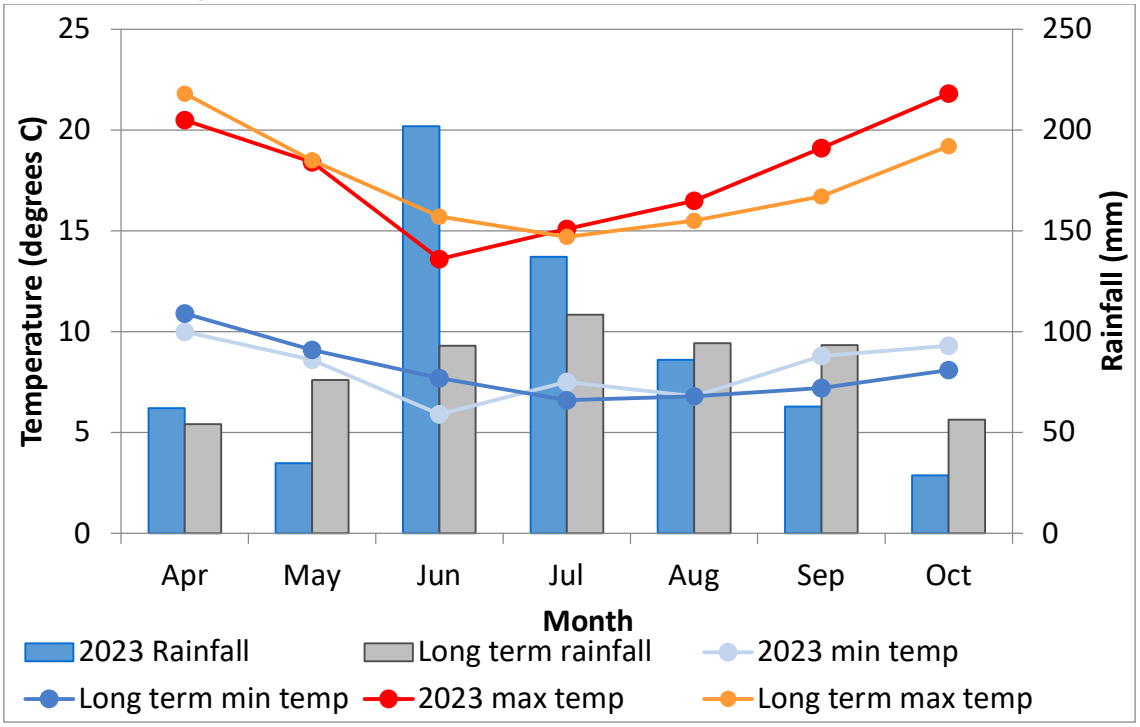

Figure 4. 2023 growing season rainfall, long-term rainfall, 2023 min and max temperatures, and long-term temperatures recorded at Rocky Gully (1996-2023). *Growing season rainfall April to October = 613mm.*

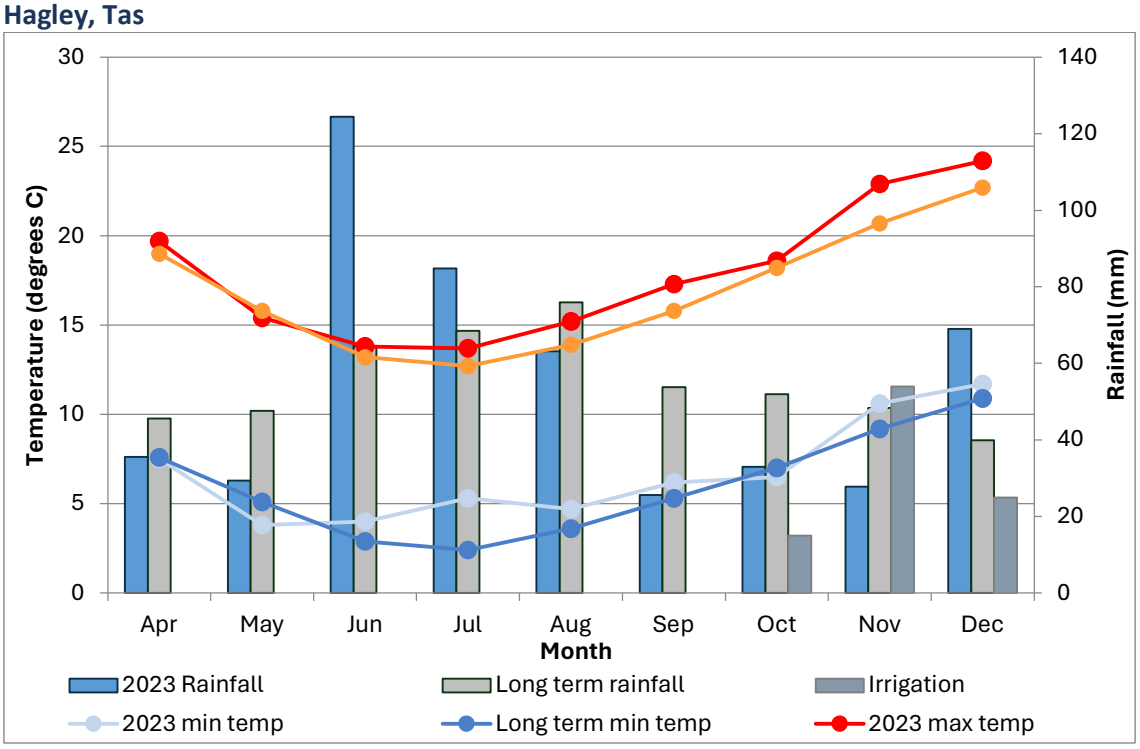

Figure 5. 2023 growing season rainfall and long-term rainfall recorded at Strathbridge (Meander River) (1985 -2023) and long-term min and max temperatures recorded at Launceston (Ti Tree Bend) (1980 to 2023) for the growing season (April to December). *Rainfall and irrigation April to December = 586.8mm.*

SOWING THE SEED FOR A BRIGHTER FUTURE

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