Industry Innovation 2025

FAR Australia Crop Technology Centres –

Germplasm Evaluation Network (GEN) 2022

10th March 2023

Contents

OBJECTIVES

To evaluate the performance of wheat and barley lines at four FAR Crop Technology Centres, Gnarwarre, VIC , Millicent, SA, Wallendbeen, NSW & Esperance, WA.

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 Intergrain, AGT and BASF with the entries made into the 2022 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 programme applied and the dates when products were applied along with nutrition details.

The following organisations contributed entries to the 2022 Germplasm Evaluation Network (GEN)

Gnarwarre, VIC

VIC Wheat TOS 1 (FAR VIC II W22-34)

Sown: 28 April 2022
Harvested: 6 Jan 2023
Soil Type: Grey Clay Loam
Previous Crop: Faba Beans

Cultivar: Various
FAR Code: FAR VIC II W22-34
GSR (Apr-Nov): 473.6 mm

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

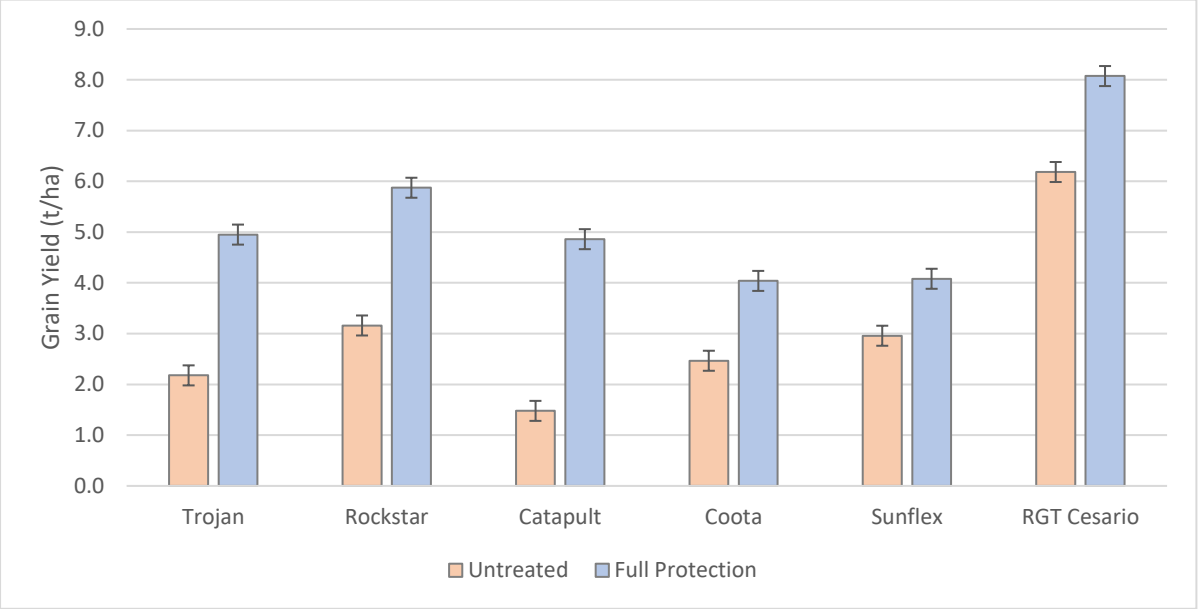

Figure 1. Influence of management and cultivar (see Table trial inputs table for full protection treatment details) on yield (t/ha) at the Victorian CTC.
N.B. Please note in 2022 a two spray (GS31 & 39) programme did not provide full disease control and protection.

Table 1. Influence of management and cultivar on yield (t/ha).

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
Trojan	2.18 f	4.95 c	**3.56**
Rockstar	3.16 e	5.87 b	**4.52**
Catapult	1.48 g	4.86 c	**3.17**
Coota	2.47 f	4.04 d	**3.25**
Sunflex	2.96 e	4.08 d	**3.52**
RGT Cesario	6.18 b	8.07 a	**7.13**
Mean	**3.07**	**5.31**	**4.19**
LSD Cultivar p = 0.05	0.28	**P val**	<0.001
LSD Management p = 0.05	0.57	**P val**	0.001
LSD Cultivar x Man. p = 0.05	0.39	**P val**	<0.001

Table 2. Influence of management and cultivar on protein (%).

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Protein %**	**Protein %**	**Protein %**
Trojan	15.5 -	13.7 -	**14.6 b**
Rockstar	14.4 -	13.4 -	**13.9 c**
Catapult	14.8 -	13.6 -	**14.2 c**
Coota	16.3 -	15.2 -	**15.8 a**
Sunflex	15.9 -	15.2 -	**15.5 a**
RGT Cesario	11.2 -	10.6 -	**10.9 d**
Mean	**14.7 a**	**13.6 b**	**14.1**
LSD Cultivar p = 0.05	0.4	**P val**	<0.001
LSD Management p = 0.05	0.6	**P val**	0.009
LSD Cultivar x Man. p = 0.05	ns	**P val**	0.079

Table 3. Influence of management and cultivar on test weight (kg/hL).

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Test wt kg/hL**	**Test wt kg/hL**	**Test wt kg/hL**
Trojan	49.8 e	68.8 bc	**59.3**
Rockstar	60.2 d	73.0 ab	**66.6**
Catapult	37.6 f	67.9 bc	**52.8**
Coota	54.0 e	65.9 c	**59.9**
Sunflex	60.1 d	66.6 c	**63.4**
RGT Cesario	74.7 a	75.6 a	**75.1**
Mean	**56.1**	**69.6**	
LSD Cultivar p = 0.05	3.9	**P val**	<0.001
LSD Management p = 0.05	6.1	**P val**	0.006
LSD Cultivar x Man. p = 0.05	5.5	**P val**	<0.001

Table 4. Influence of management and cultivar on screenings (%).

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Screenings %**	**Screenings %**	**Screenings %**
Trojan	10.9 b	3.8 d	**7.3 a**
Rockstar	5.1 cd	1.8 d	**3.4 bc**
Catapult	17.2 a	3.0 d	**10.1 a**
Coota	11.4 b	2.8 d	**7.1 a**
Sunflex	9.6 bc	4.1 d	**6.9 ab**
RGT Cesario	2.3 d	1.7 d	**2.0 c**
Mean	**9.4 a**	**2.9 b**	**6.1**
LSD Cultivar p = 0.05	3.4	**P val**	0.001
LSD Management p = 0.05	3.1	**P val**	0.007
LSD Cultivar x Man. p = 0.05	4.9	**P val**	0.008

Disease assessment data

The principal diseases evident in the trial were Septoria tritici blotch (STB) and stripe rust. The level of disease was recorded on 15 November when the majority of spring cultivars were in late milk/early dough (Figure 1). Stripe rust infection was found to be severe in treated plots and levels were recorded in the head at the time of assessment (Figure 2). Lodging scores were recorded prior to harvest on 21 December (Figure 3).

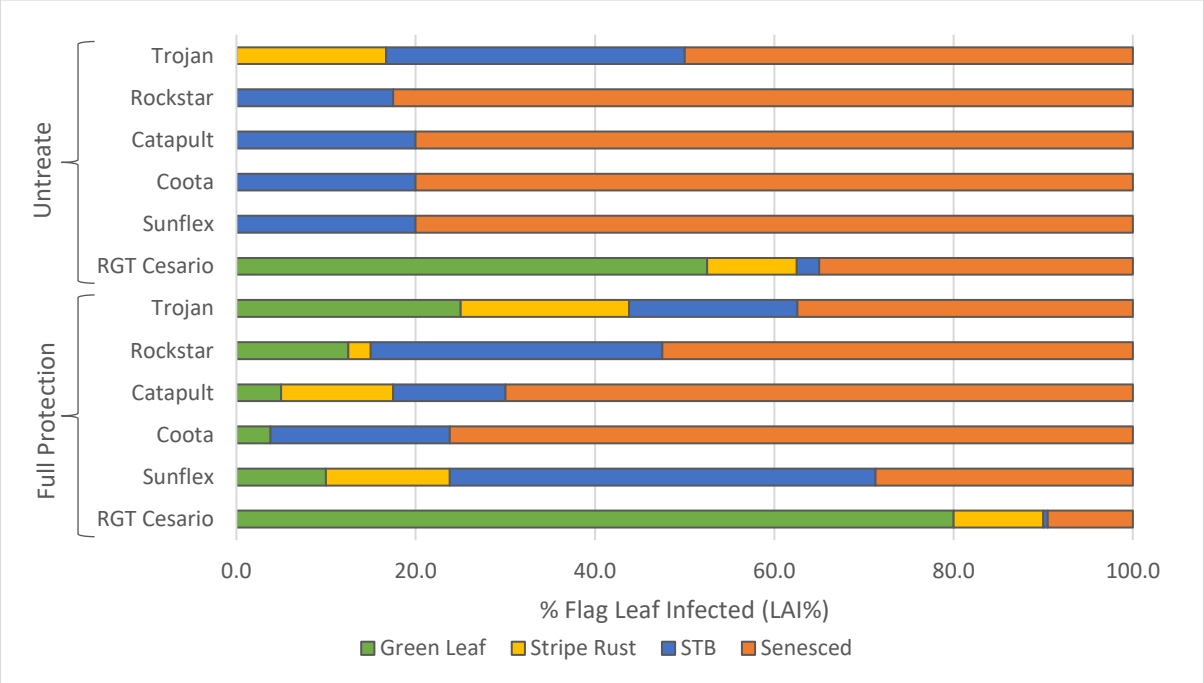

Figure 2. Influence of fungicide management and cultivar on disease severity (% flag leaf) when assessed on the 15 November, GS75.

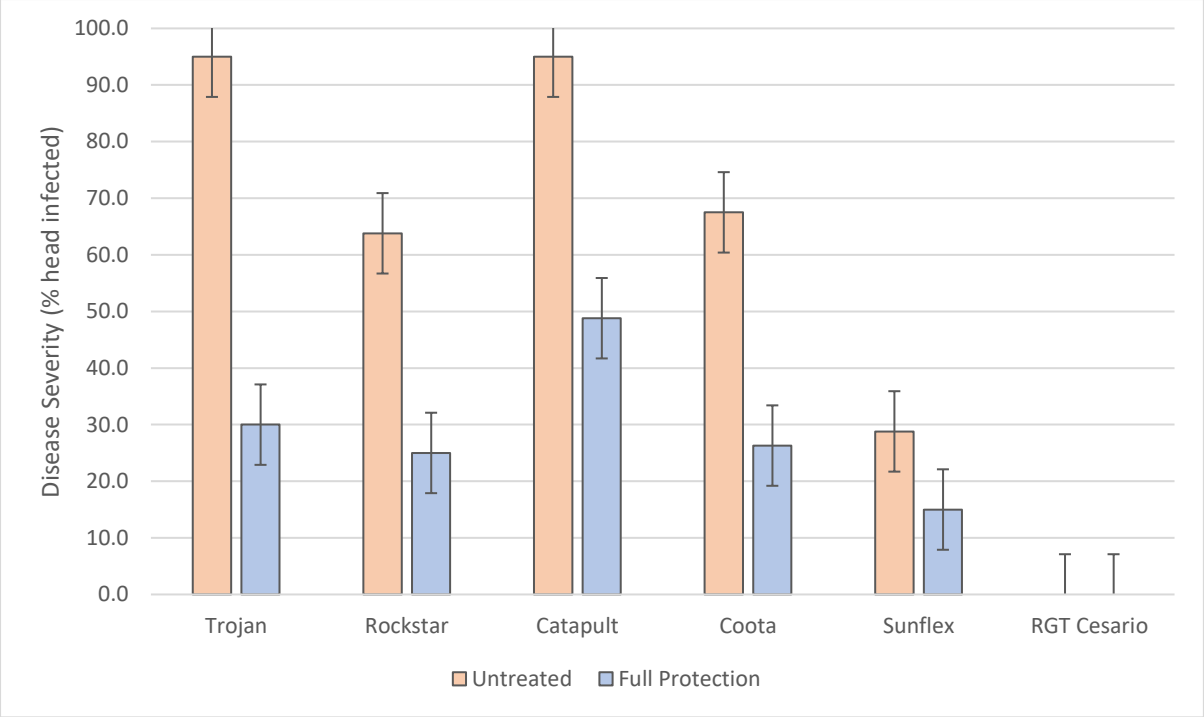

Figure 3. Influence of fungicide management and cultivar on stripe rust head infection (% of head) when assessed on the 15 November, GS75.

Lodging

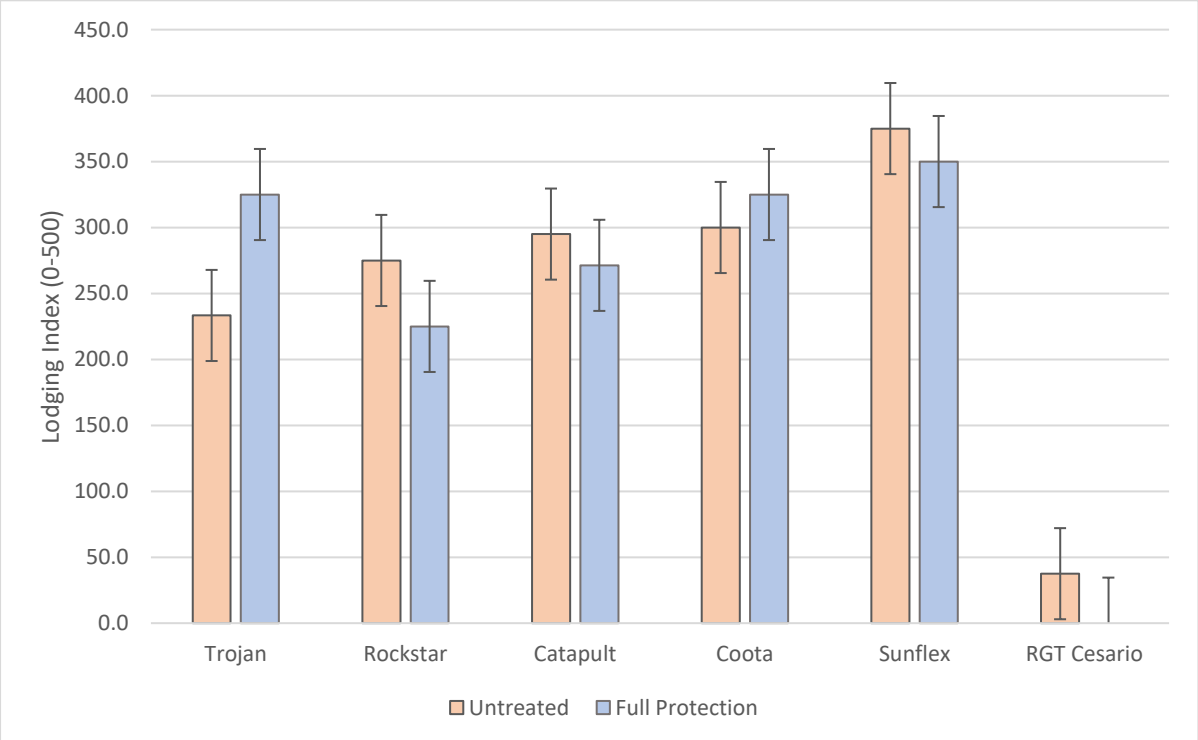

Figure 4. Influence of fungicide management and cultivar and cultivar on lodging index (0-500) at the Victorian CTC.

Trial inputs

Sowing Date	28 April 2022		
Sowing Rate:		180 Seeds/m^2	
Seed Treatment:		Vibrance + Gaucho	
Basal Fertiliser:	20 May	100 kg/ha MAP	
Nitrogen:	13 Jul	50 kg N/ha (109kg Urea)	
	5 Sep	100 kg N/ha (217kg Urea)	
Plant Growth Regulator:	GS30	Moddus Evo 0.20 L/ha & Errex 0.65L/ha	
	GS32	Moddus Evo 0.20 L/ha & Errex 0.65L/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	---	Prosaro 0.30 L/ha
	GS39	---	Radial 0.84 L/ha

VIC Wheat TOS 2 (FAR VIC II W22-35)

Sown: 20 May 2022
Harvested: 6 Jan 2023
Soil Type: Grey Clay Loam
Previous Crop: Faba Beans

Cultivar: Various
FAR Code: FAR VIC II W22-35
GSR (Apr-Nov): 473.6 mm

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

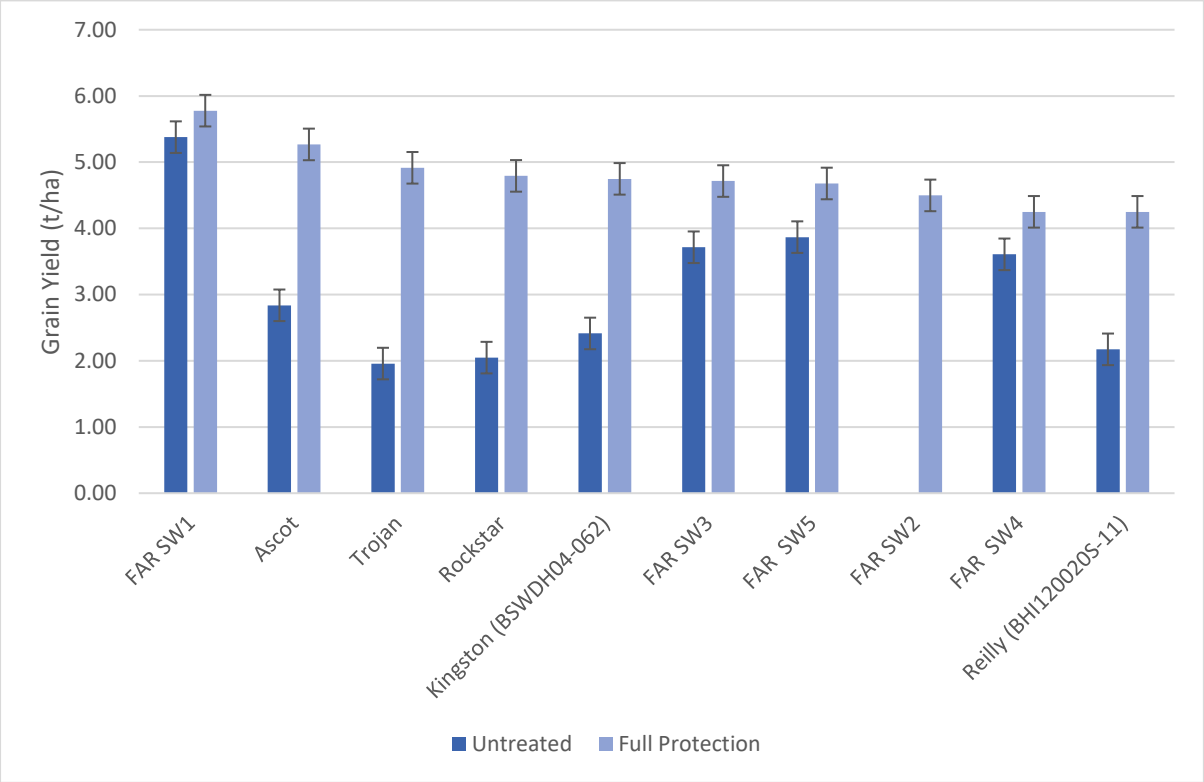

Figure 1. Influence of management and cultivar on yield (t/ha) at the Victorian CTC.

Table 1. Influence of management and cultivar on yield (t/ha).

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
Trojan (FAR Control)	1.96 j	4.92 cd	**3.44 de**
Rockstar (FAR Control)	2.05 ij	4.79 d	**3.42 de**
Ascot	2.84 h	5.27 bc	**4.05 bc**
Kingston (BSWDH04-062)	2.41 hi	4.75 d	**3.58 d**
Reilly (BHI120020S-11)	2.17 ij	4.25 ef	**3.21 e**
FAR SW4	3.61 g	4.25 ef	**3.93 c**
FAR SW1	5.38 ab	5.78 a	**5.58 a**
FAR SW3	3.72 g	4.72 d	**4.22 bc**
FAR SW5	3.87 fg	4.68 de	**4.27 b**
Mean	**3.11 b**	**4.82 a**	**3.99**
LSD Cultivar p = 0.05	0.31	**P val**	<0.001
LSD Management p = 0.05	0.38	**P val**	0.001
LSD Cultivar x Man. p = 0.05	0.44	**P val**	<0.001

Table 2. Influence of management and cultivar on protein (%).

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Protein %**	**Protein %**	**Protein %**
Trojan (FAR Control)	14.8 b	13.3 efg	**14.0 b**
Rockstar (FAR Control)	15.3 a	13.6 def	**14.5 a**
Ascot	15.6 a	13.8 d	**14.7 a**
Kingston (BSWDH04-062)	14.4 bc	13.2 fgh	**13.8 bc**
Reilly (BHI120020S-11)	14.3 c	12.8 ghi	**13.5 cd**
FAR SW4	14.0 cd	13.2 fgh	**13.6 cd**
FAR SW1	12.1 j	12.4 ij	**12.2 f**
FAR SW3	13.6 def	12.7 hi	**13.2 e**
FAR SW5	13.7 de	13.1 gh	**13.4 de**
Mean	**14.2 a**	**13.1 b**	**13.6**
LSD Cultivar p = 0.05	0.3	**P val**	<0.001
LSD Management p = 0.05	0.6	**P val**	0.013
LSD Cultivar x Man. p = 0.05	0.5	**P val**	<0.001

Table 3. Influence of management and cultivar on test weight (kg/hL).

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Test wt kg/hL**	**Test wt kg/hL**	**Test wt kg/hL**
Trojan (FAR Control)	60.5 h	73.3 ef	**66.9 ef**
Rockstar (FAR Control)	58.1 i	73.1 f	**65.6 f**
Ascot	63.8 g	76.4 bc	**70.1 c**
Kingston (BSWDH04-062)	61.8 gh	75.2 cde	**68.5 d**
Reilly (BHI120020S-11)	61.4 h	74.3 def	**67.8 de**
FAR SW4	77.6 ab	78.6 a	**78.1 a**
FAR SW1	78.7 a	78.8 a	**78.7 a**
FAR SW3	77.4 ab	78.8 a	**78.1 a**
FAR SW5	76.0 bcd	77.1 abc	**76.6 b**
Mean	**68.4 b**	**76.2 a**	**72.6**
LSD Cultivar p = 0.05	1.5	**P val**	<0.001
LSD Management p = 0.05	2.4	**P val**	0.002
LSD Cultivar x Man. p = 0.05	2.1	**P val**	<0.001

Table 4. Influence of management and cultivar on screenings (%).

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Screenings %**	**Screenings %**	**Screenings %**
Trojan (FAR Control)	13.3 bc	4.9 e	**9.1 b**
Rockstar (FAR Control)	11.8 c	2.5 fgh	**7.2 c**
Ascot	14.0 b	3.3 efg	**8.7 b**
Kingston (BSWDH04-062)	8.6 d	1.6 h	**5.1 d**
Reilly (BHI120020S-11)	17.1 a	3.6 ef	**10.3 a**
FAR SW4	2.4 fgh	2.0 fgh	**2.2 e**
FAR SW1	1.7 gh	1.3 h	**1.5 e**
FAR SW3	2.6 fgh	2.0 fgh	**2.3 e**
FAR SW5	1.8 gh	2.0 fgh	**1.9 e**
Mean	**8.1 a**	**2.6 b**	**5.2**
LSD Cultivar p = 0.05	1.2	**P val**	<0.001
LSD Management p = 0.05	1.6	**P val**	0.002
LSD Cultivar x Man. p = 0.05	1.7	**P val**	<0.001

Disease assessment data

The principal diseases evident in the trial were Septoria tritici blotch (STB) and stripe rust. The level of disease was recorded on 15 November when the majority of spring cultivars were in late milk/early dough (Figure 1). Lodging scores were recorded prior to harvest on 21 December (Figure 3).

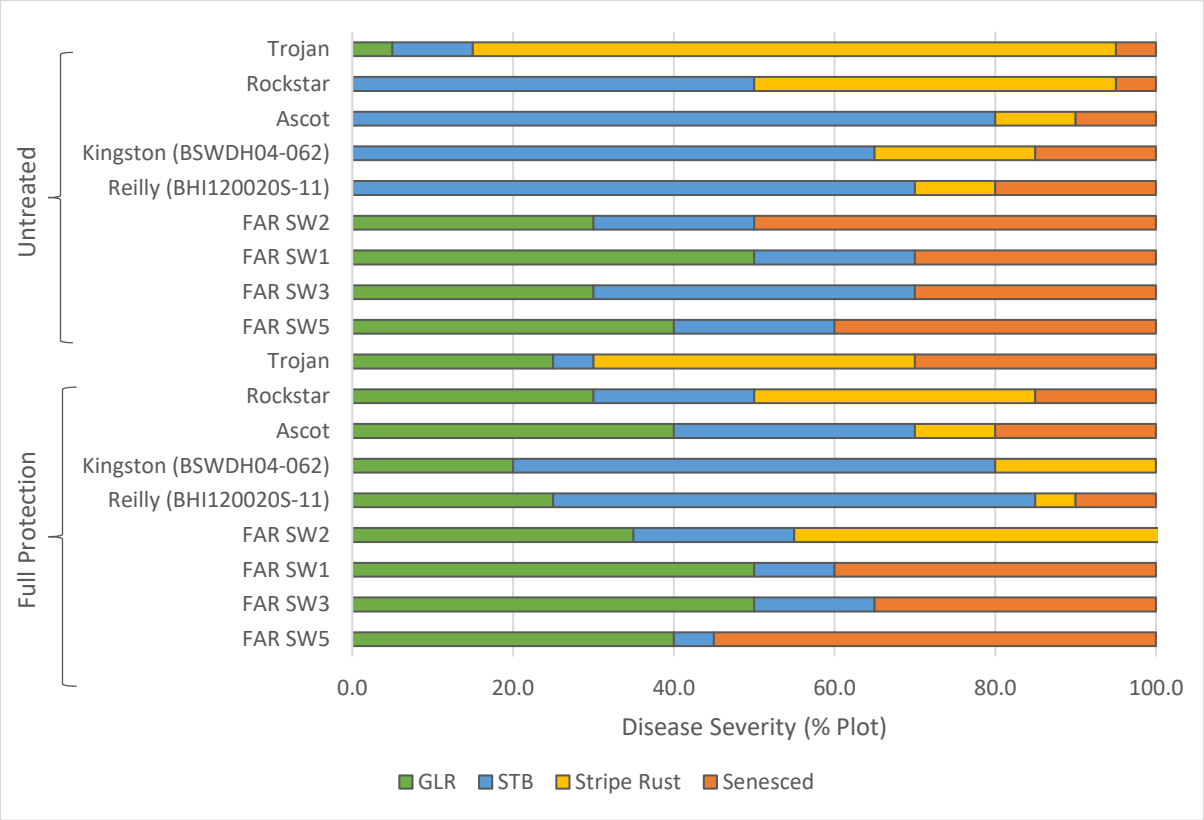

Figure 2. Influence of canopy management on disease severity (% flag leaf) when assessed on the 15 November, GS75.

Lodging

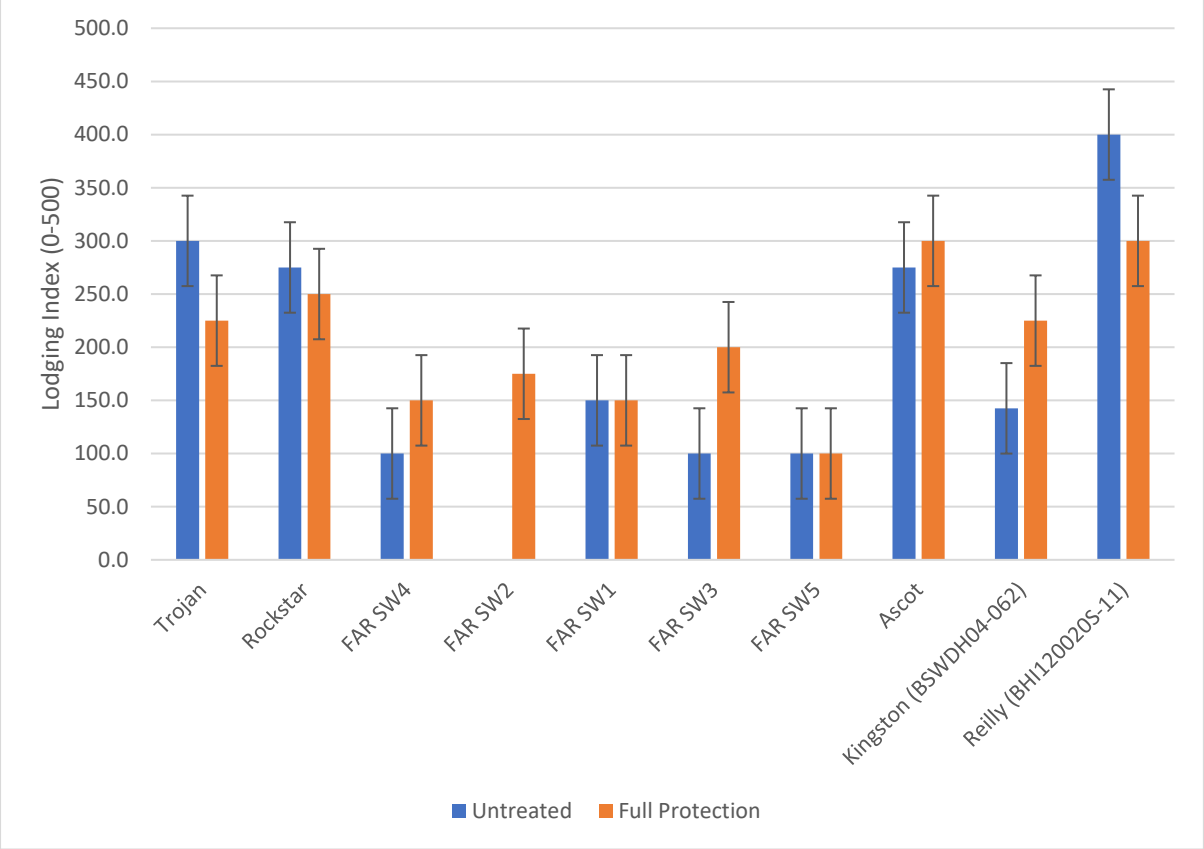

Figure 3. Influence of canopy management and cultivar on lodging index (0-500) at the Victorian CTC.

Trial inputs

Sowing Date	20 May 2022		
Sowing Rate:		180 Seeds/m^2	
Seed Treatment:		Vibrance + Gaucho	
Basal Fertiliser:	20 May	100 kg/ha MAP	
Nitrogen:	13 Jul	50 kg N/ha (109kg Urea)	
	5 Sep	100 kg N/ha (217kg Urea)	
Plant Growth Regulator:	GS30	Moddus Evo 0.20 L/ha & Errex 0.65L/ha	
	GS32	Moddus Evo 0.20 L/ha & Errex 0.65L/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	---	Prosaro 0.30 L/ha
	GS39	---	Radial 0.84 L/ha

VIC Wheat TOS 1 (FAR VIC CT W22-98)

Sown: 28 April 2022
Harvested: 6 Jan 2023
Soil Type: Grey Clay Loam
Previous Crop: Faba Beans

Cultivar: Various
FAR Code: FAR VIC CT W22-98
GSR (Apr-Nov): 473.6 mm

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

Table 1. Influence of cultivar on yield (t/ha) and grain quality (%, kg/hl)

	Yield		Grain Quality		
Cultivar	Yield (t/ha)	% of Mean	Protein (%)	Test Weight (kg/hl)	Screenings (%)
FAR WW1	8.04 b	98.2 b	11.1 bc	77.6 c	2.8 abc
FAR WW2	9.88 a	120.8 a	9.9 d	81.0 a	3.1 ab
FAR WW3	8.28 b	101.2 b	11.1 b	79.0 b	3.3 ab
FAR WW4	6.22 c	76.0 c	12.2 a	76.0 e	3.6 a
FAR WW5	8.30 b	101.4 b	10.7 bc	77.5 cd	2.7 bc
RGT Accroc (FAR Control)	8.38 b	102.4 b	10.6 c	76.4 de	2.1 c
Mean	8.18	100.0	10.9	77.9	2.9
LSD p = 0.05	0.67	8.2	0.5	1.2	0.9
P value	<0.001	<0.001	<0.001	<0.001	0.032

Lodging

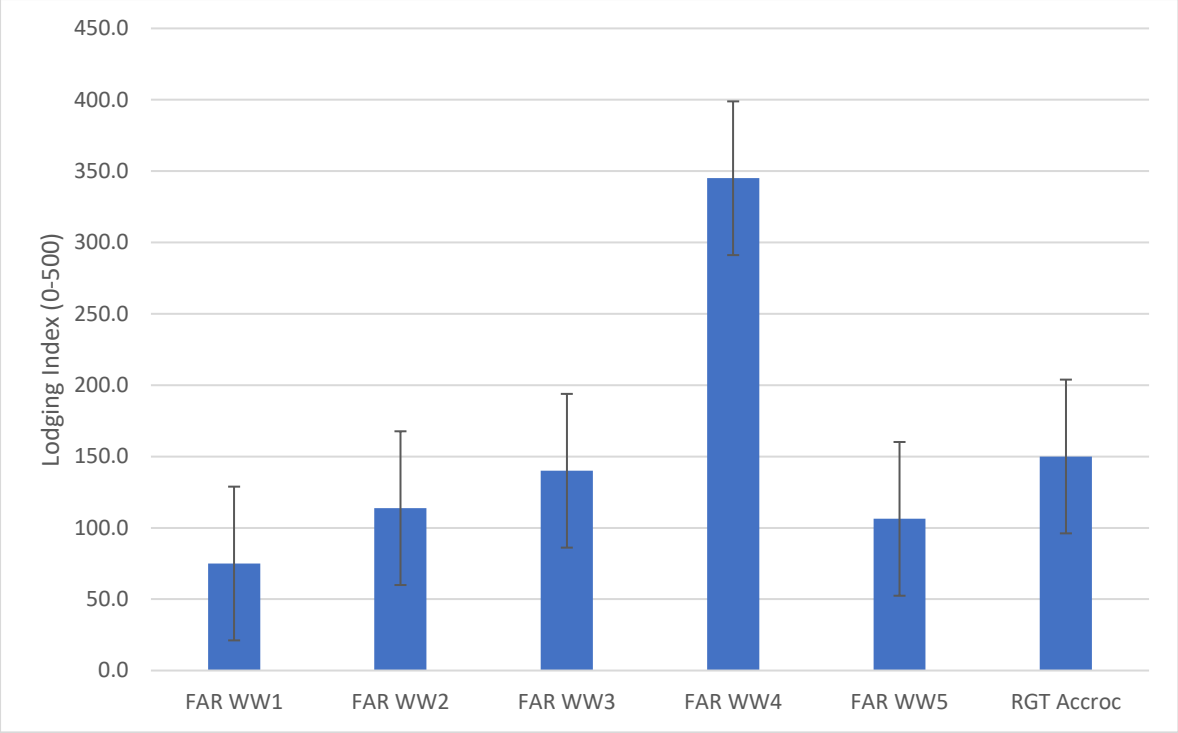

Figure 1. Influence of cultivar on lodging index (0-500) when assessed on 3 January 2023 at crop maturity.

Trial inputs

Sowing Date	28 April 2022	
Sowing Rate:		180 Seeds/m^2
Seed Treatment:		Vibrance + Gaucho
Basal Fertiliser:	28 April	100 kg/ha MAP
Nitrogen:	13 Jul	50 kg N/ha (109kg Urea)
	5 Sep	100 kg N/ha (217kg Urea)
Plant Growth Regulator:	GS30	Moddus Evo 0.20 L/ha & Errex 0.65L/ha
	GS32	Moddus Evo 0.20 L/ha & Errex 0.65L/ha
Fungicide:	GS31	Prosaro 0.30 L/ha
	GS39	Radial 0.84 L/ha

VIC Barley (FAR VIC II B22-36)

Sown: 20 May 2022
Harvested: 27 Dec 2022
Soil Type: Grey Clay Loam
Previous Crop: Faba Beans

Cultivar: Various
FAR Code: FAR VIC CT B22-36
GSR (Apr-Nov): 473.6 mm

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

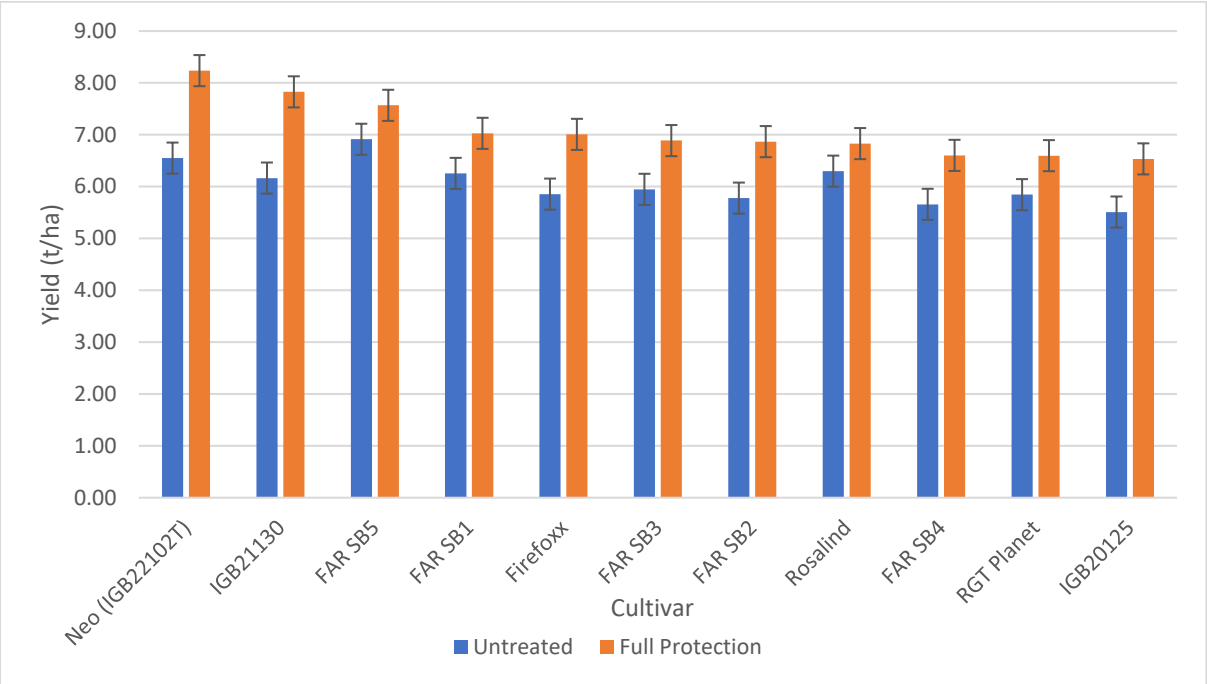

Figure 1. Influence of management and cultivar on yield (t/ha) at the Victorian CTC.

Table 1. Influence of management and cultivar on yield (t/ha).

	Management Level					
	Untreated		Full protection		Mean	
Cultivar	Yield t/ha		Yield t/ha		Yield t/ha	
RGT Planet (FAR Control)	5.85	-	6.60	-	6.22	cd
Rosalind	6.30	-	6.83	-	6.56	c
IGB21130	6.17	-	7.83	-	7.00	ab
IGB20125	5.51	-	6.54	-	6.02	d
Neo (IGB22102T)	6.55	-	8.24	-	7.39	a
Firefoxx	5.86	-	7.01	-	6.43	cd
FAR SB1	6.26	-	7.03	-	6.64	bc
FAR SB2	5.78	-	6.87	-	6.32	cd
FAR SB3	5.95	-	6.89	-	6.42	cd
FAR SB4	5.66	-	6.60	-	6.13	d
FAR SB5	6.91	-	7.57	-	7.24	a
Mean	6.07	b	7.09	a	6.58	
LSD Cultivar p = 0.05	0.42		P val		<0.001	
LSD Management p = 0.05	0.76		P val		0.023	
LSD Cultivar x Man. p = 0.05	ns		P val		0.143	

Table 2. Influence of management and cultivar on protein (%).

	Management Level					
	Untreated		Full protection		Mean	
Cultivar	Protein %		Protein %		Protein %	
RGT Planet (FAR Control)	13.4	-	13.1	-	13.2	abc
Rosalind	13.8	-	13.4	-	13.6	ab
IGB21130	12.9	-	12.0	-	12.4	de
IGB20125	13.1	-	12.3	-	12.7	cd
Neo (IGB22102T)	12.6	-	11.7	-	12.2	e
Firefoxx	14.4	-	13.1	-	13.7	a
FAR SB1	13.6	-	12.7	-	13.2	bc
FAR SB2	13.4	-	12.8	-	13.1	bc
FAR SB3	13.4	-	13.4	-	13.4	ab
FAR SB4	13.7	-	13.1	-	13.4	ab
FAR SB5	12.7	-	12.3	-	12.5	de
Mean	13.4	-	12.7	-		
LSD Cultivar p = 0.05	0.5		P val		<0.001	
LSD Management p = 0.05	ns		P val		0.147	
LSD Cultivar x Man. p = 0.05	ns		P val		0.504	

Table 3. Influence of management and cultivar on test weight (kg/hL).

	Management Level					
	Untreated		Full protection		Mean	
Cultivar	Test wt kg/hL		Test wt kg/hL		Test wt kg/hL	
RGT Planet (FAR Control)	59.5	hij	61.2	e-i	60.3	de
Rosalind	64.9	abc	65.4	a	65.1	a
IGB21130	59.8	g-j	63.8	a-d	61.8	bcd
IGB20125	58.6	j	61.1	e-i	59.8	ef
Neo (IGB22102T)	60.7	e-j	65.1	ab	62.9	bc
Firefoxx	55.2	k	61.6	d-h	58.4	f
FAR SB1	60.1	f-j	62.5	c-f	61.3	cde
FAR SB2	59.4	hij	62.2	d-g	60.8	de
FAR SB3	62.4	def	63.8	a-d	63.1	b
FAR SB4	58.8	ij	60.3	e-j	59.6	ef
FAR SB5	62.5	c-f	62.7	b-e	62.6	bc
Mean	60.2	-	62.7	-		
LSD Cultivar p = 0.05	1.8		P val		<0.001	
LSD Management p = 0.05	ns		P val		0.141	
LSD Cultivar x Man. p = 0.05	2.5		P val		0.039	

Table 4. Influence of management and cultivar on retention (%).

	Management Level					
	Untreated		Full protection		Mean	
Cultivar	Retention %		Retention %		Retention %	
RGT Planet (FAR Control)	72.1	-	77.2	-	74.7	cd
Rosalind	82.1	-	83.1	-	82.6	ab
IGB21130	70.5	-	85.9	-	78.2	a-d
IGB20125	72.4	-	81.5	-	76.9	bcd
Neo (IGB22102T)	74.3	-	86.1	-	80.2	abc
Firefoxx	56.4	-	76.0	-	66.2	ef
FAR SB1	80.6	-	88.2	-	84.4	a
FAR SB2	67.2	-	78.6	-	72.9	de
FAR SB3	80.5	-	82.8	-	81.6	abc
FAR SB4	60.7	-	65.6	-	63.1	f
FAR SB5	82.1	-	82.0	-	82.0	ab
Mean	72.6	-	80.6	-	76.6	
LSD Cultivar p = 0.05	7.1		P val		<0.001	
LSD Management p = 0.05	ns		P val		0.205	
LSD Cultivar x Man. p = 0.05	ns		P val		0.154	

Table 5. Influence of management and cultivar on screenings (%).

	Management Level					
	Untreated		Full protection		Mean	
Cultivar	Screenings %		Screenings %		Screenings %	
RGT Planet (FAR Control)	8.6	-	7.0	-	7.8	bc
Rosalind	4.4	-	4.1	-	4.3	d
IGB21130	9.6	-	3.8	-	6.7	bcd
IGB20125	9.3	-	5.2	-	7.3	bcd
Neo (IGB22102T)	6.9	-	3.3	-	5.1	cd
Firefoxx	17.7	-	7.1	-	12.4	a
FAR SB1	5.5	-	3.1	-	4.3	d
FAR SB2	10.8	-	6.3	-	8.5	b
FAR SB3	6.0	-	5.0	-	5.5	bcd
FAR SB4	14.3	-	11.1	-	12.7	a
FAR SB5	5.2	-	5.4	-	5.3	cd
Mean	8.9	-	5.6	-	7.3	
LSD Cultivar p = 0.05	3.2		P val		<0.001	
LSD Management p = 0.05	ns		P val		0.199	
LSD Cultivar x Man. p = 0.05	ns		P val		0.082	

Disease assessment data

The principal disease evident in the trial was net form of net blotch (NFNB). The level of disease was recorded on 15 November when the majority of spring cultivars were in late milk/early dough (Figure 2). Brackling and lodging scores were recorded prior to harvest on 21 December (Figure 3).

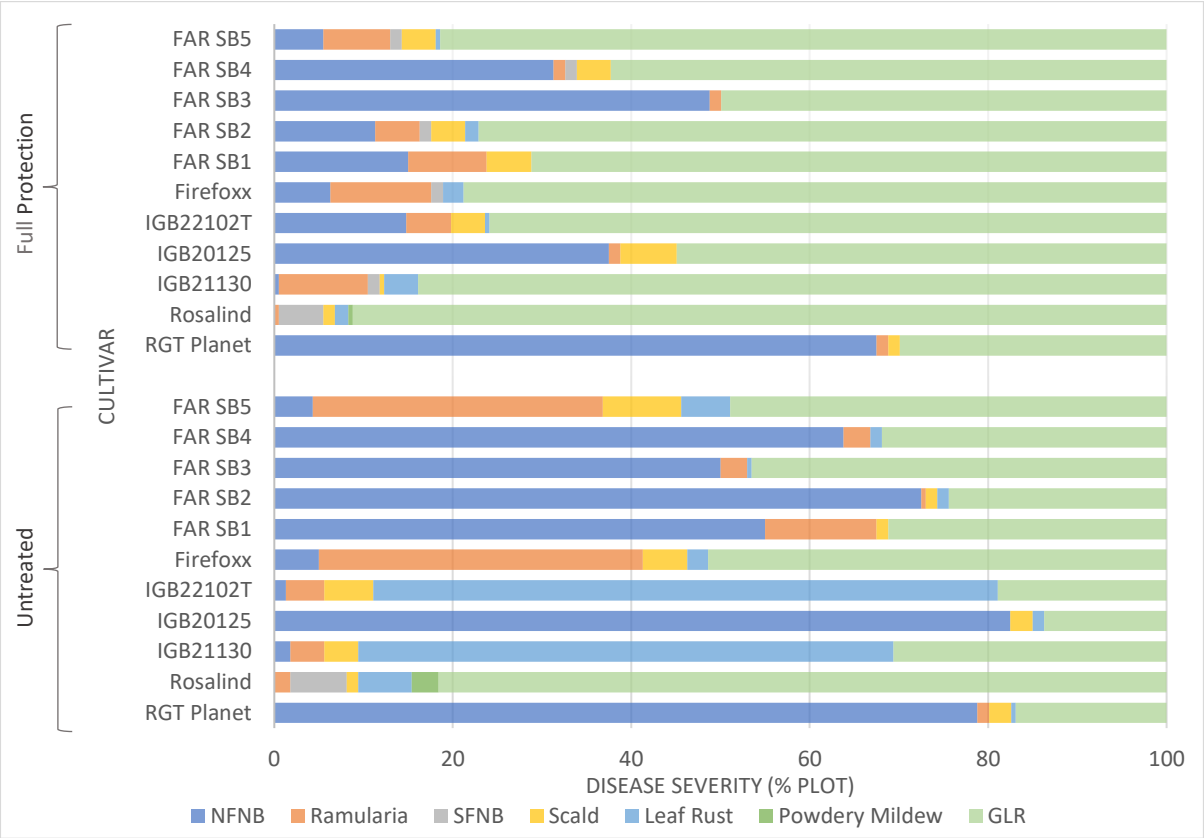

Figure 2. Influence of canopy management on disease severity (% Plot) when assessed on the 15 November, GS75.

Lodging

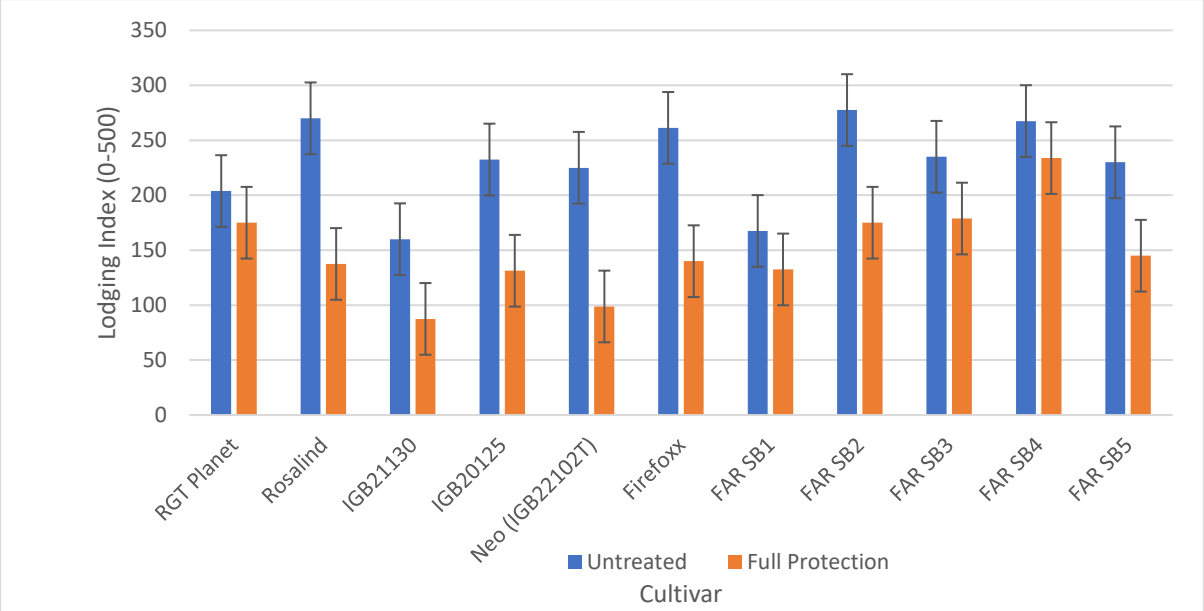

Figure 3. Influence of canopy management and cultivar on lodging index (0-500) at the Victorian CTC. Error bars represent LSD (p=0.05) of 85.6.

Trial Inputs

Table 6. Trial input and management details.

Sowing Date	**20 May 2022**		
Sowing Rate:		180 Seeds/m^2	
Seed Treatment:		Vibrance + Gaucho	
Basal Fertiliser:	20 May	100 kg/ha MAP	
Nitrogen:	13 Jul	50 kg N/ha (109kg Urea)	
	5 Sep	100 kg N/ha (217kg Urea)	
Plant Growth Regulator:	17 Aug	Moddus Evo 0.20 L/ha	
Fungicide:		**Untreated**	**Full Protection**
	GS31	---	Prosaro 0.30 L/ha
	GS49	---	Radial 0.84 L/ha

Millicent SA

SA Wheat TOS 1 (FAR SAC II W22-37)

Sown: 21 April 2022
Harvested: 11 Jan 2023
Soil Type: Organosol (peat)
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR SAC II W22-37
GSR (Apr-Nov): 674 mm

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

The trial was subject to very high Septoria tritici blotch (STB) infection. This high disease pressure led to complete defoliation in the untreated by the time of assessment at grain fill. A three spray fungicide programme for disease control was not completely effective and green leaf retention differences in the treated plots were due to STB infection. Despite incomplete disease control yield responses to fungicide application were very high and all cultivars tested gave significant responses to fungicide (Figure 1).

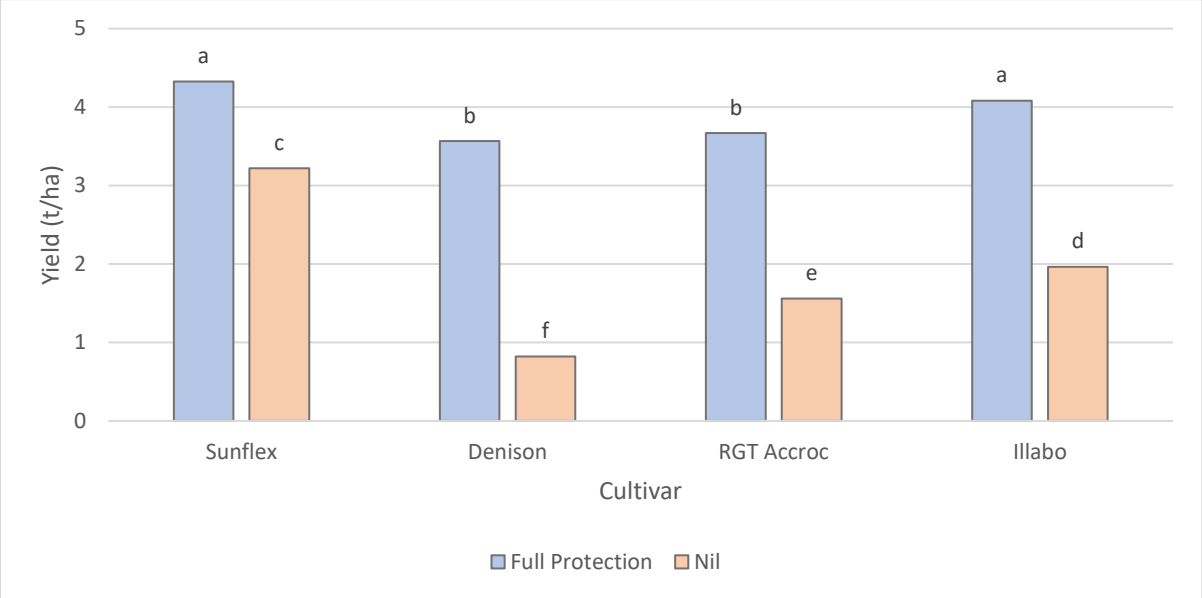

Figure 1. Influence of fungicide management and cultivar on grain yield (t/ha). *Values with different letters represent statistically different yields*. P val <0.001, LSD = 0.32.

Table 1. Influence of fungicide management and cultivar on grain protein (%). *Values with different letters are statistically different.*

	Management Level		
Cultivar	**Untreated**	**Full protection**	**Mean**
	Protein (%)	Protein (%)	Protein (%)
Sunflex	13.5 -	13.7 -	13.6 -
Denison	13.2 -	13.4 -	13.3 -
RGT Accroc	14.1 -	14.1 -	14.1 -
Illabo	13.6 -	13.5 -	13.5 -
Mean	13.6 -	13.7 -	
LSD Cultivar p=0.05	1.0	P val	0.409
LSD Management p=0.05	0.5	P val	0.693
LSD Cultivar x Man. P=0.05	1.4	P val	0.969

Table 2. Influence of fungicide management and cultivar on grain test weight (kg/hL). *Values with different letters are statistically different.*

	Management Level		
Cultivar	**Untreated**	**Full protection**	**Mean**
	Test weight (kg/hL)	Test weight (kg/hL)	Test weight (kg/hL)
Sunflex	71.7 c	75.5 a	**73.6**
Denison	60.5 f	75.5 a	**68.0**
RGT Accroc	63.1 e	73.7 b	**68.4**
Illabo	68.4 d	76.2 a	**72.3**
Mean	**65.9**	**75.2**	
LSD Cultivar p=0.05	0.8	P val	<0.001
LSD Management p=0.05	0.6	P val	<0.001
LSD Cultivar x Man. P=0.05	1.1	P val	<0.001

Table 3. Influence of fungicide management and cultivar on grain screenings (%). *Values with different letters are statistically different.*

	Management Level		
Cultivar	**Untreated**	**Full protection**	**Mean**
	Screenings (%)	Screenings (%)	Screenings (%)
Sunflex	2.5 b	2.3 b	**2.4**
Denison	10.3 a	3.3 b	**6.8**
RGT Accroc	9.7 a	2.9 b	**6.3**
Illabo	2.1 b	1.0 b	**1.5**
Mean	**6.1**	**2.4**	
LSD Cultivar p=0.05	2.0	P val	<0.001
LSD Management p=0.05	1.3	P val	<0.001
LSD Cultivar x Man. P=0.05	2.9	P val	<0.001

Disease assessment data

STB completely defoliated the untreated plots and also significantly reduced green leaf retention in the fungicide treated plots. The green leaf retention scores are the inverse of the STB present in treated plots (Figure 2). Note there were very low levels of leaf rust in the Illabo and RGT Accroc plots.

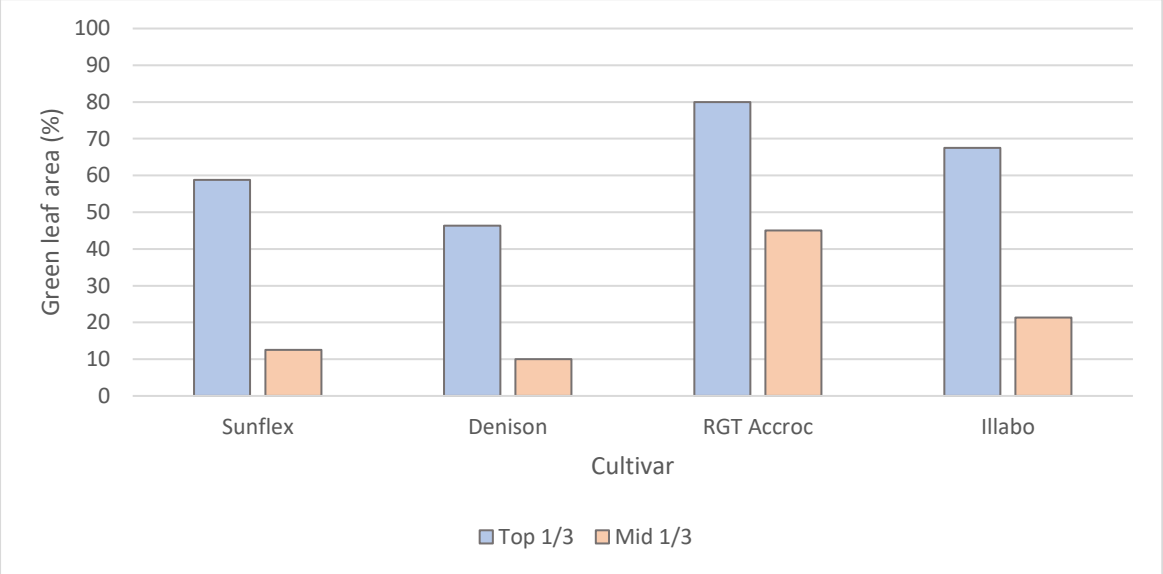

Figure 2. Green leaf area retained in the top and middle thirds of the canopy, 16 November 2022. Only full protection is shown as no green leaf was left in untreated plots. Top third: P val <0.001, LSD = 8.2; middle third: P val = 0.013, LSD = 15.4.

Lodging

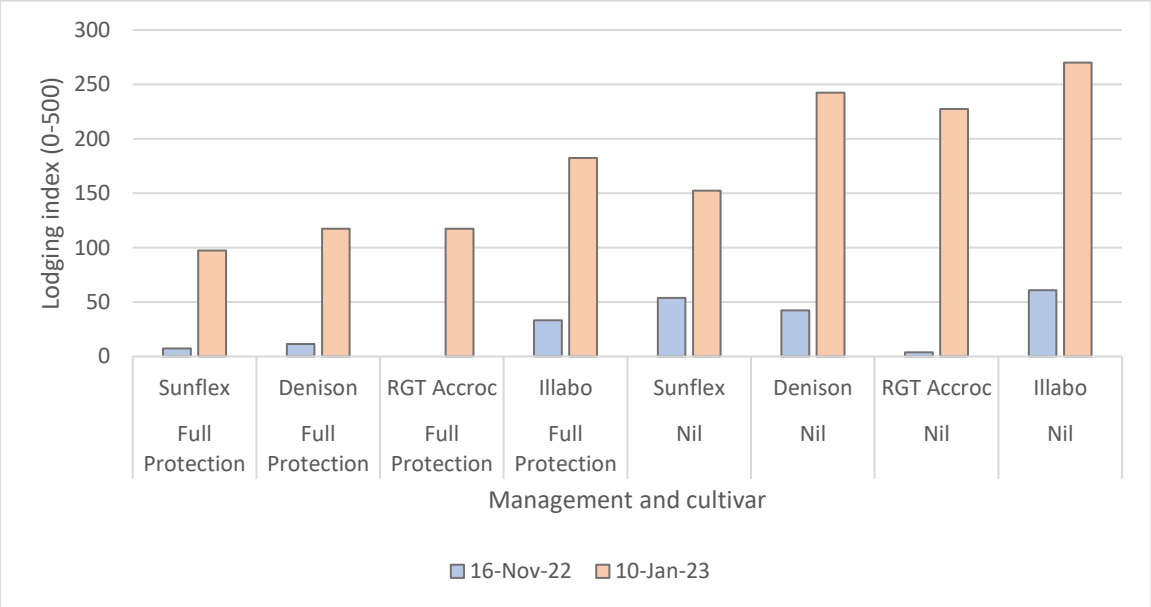

Figure 3. Influence of management and cultivar on crop lodging, assessed 16 Nov 2022 and 10 Jan 2023. Results for both assessment dates were not statistically different.

Trial Inputs

Table 4. Trial input and management details – Millicent SA

Sowing Date	**21-Apr**	
Sowing Rate:		180 seeds/m^2
Seed Treatment:		Vibrance + Gaucho
Basal Fertiliser:	21-Apr	100 kg MAP/ha
Nitrogen:	6-Jul	50 kg N/ha (109kg Urea)
	23-Aug	100 kg N/ha (217kg Urea)

Table 5. Fungicide application dates and timing specific for each cultivar (full protection only).

Fungicide applications						
	Application 1		Application 2		Application 3	
	Prosaro 300 mL/ha		Aviator Xpro 500 mL/ha		Opus 500 mL/ha	
Cultivar	Devt. stage (target Z31)	Date	Devt. stage (target Z39)	Date	Devt. stage (target Z59-61)	Date
Sunflex	Z31	20-Jul	Z55	29-Sep	Z69	18-Oct
Denison	Z31	9-Aug	Z49	29-Sep	Z69	18-Oct
RGT Accroc	Z33	29-Sep	Z47	10-Oct	Z59	18-Oct
Illabo	Z31	26-Aug	Z59	10-Oct	Z69	18-Oct

Table 6. Plant growth regulator (PGR) application dates and timing specific for each cultivar (full protection only).

PGR applications				
	Application 1		Application 2	
	Moddus Evo 100 mL/ha Errex 650 mL/ha		Moddus Evo 100 mL/ha Errex 650 mL/ha	
Cultivar	Devt. stage (target Z30)	Date	Devt. stage (target Z33)	Date
Sunflex	Z31	20-Jul	Z33	25-Aug
Denison	Z31	9-Aug	Z32	25-Aug
RGT Accroc	Z30	25-Aug	Z37	29-Sep
Illabo	Z31	25-Aug	*	*

*Missed second application timing.

Table 7. Estimated date of flowering (Z65).

Estimated flowering date	
Cultivar	**Date**
Sunflex	11-Oct
Denison	12-Oct
RGT Accroc	29-Oct
Illabo	14-Oct

SA Wheat TOS 2 (FAR SAC II W22-38)

Sown: 11 May 2022
Harvested: 12 Jan 2023
Soil Type: Organosol (peat)
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR SAC II W22-38
GSR (Apr-Nov): 674 mm

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

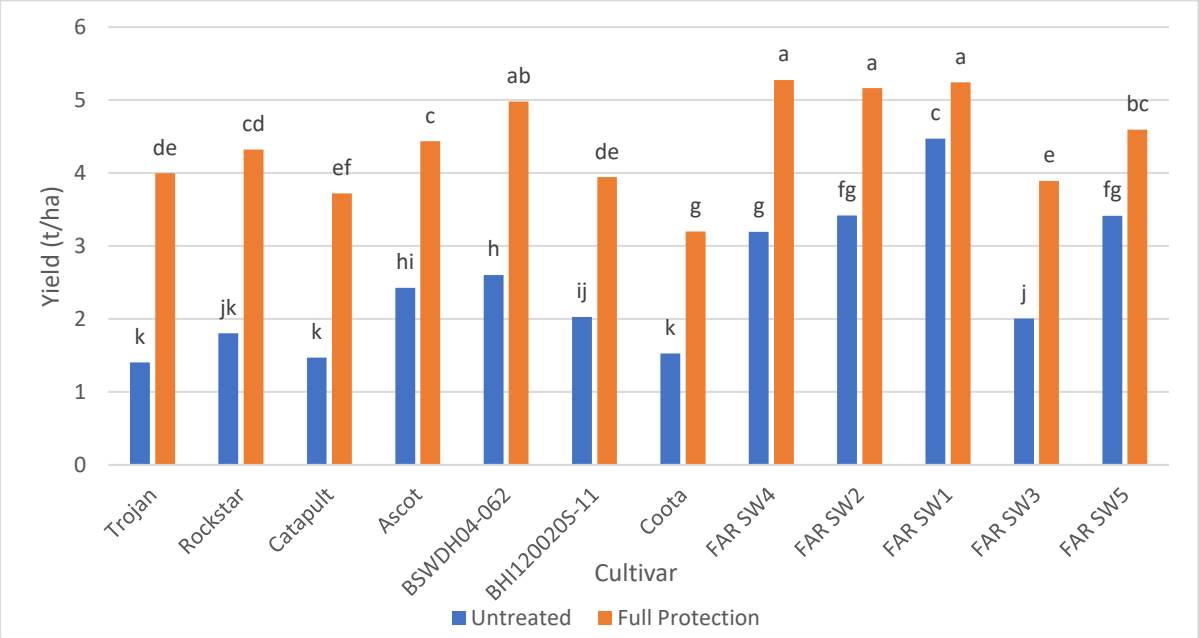

Figure 4. Influence of fungicide management and cultivar on grain yield (t/ha). *Values with different letters represent statistically different yields*. P val <0.001, LSD = 0.41.

Table 8. Influence of fungicide management and cultivar on grain protein (%). *Values with different letters are statistically different.*

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	Protein (%)	Protein (%)	Protein (%)
Trojan (FAR Control)	14.3 bc	12.7 j	13.5 c
Rockstar (FAR Control)	14.0 c-f	12.6 jk	13.3 cd
Catapult	14.1 cde	12.5 jk	13.3 cd
Ascot	14.2 bcd	13.8 efg	14.0 b
BSWDH04-062	13.7 efg	12.4 jk	13.0 de
BHI120020S-11	13.6 fg	12.2 k	12.9 e
Coota	15.3 a	13.7 efg	14.5 a
FAR SW4	14.7 b	13.5 gh	14.1 b
FAR SW2	13.1 hi	12.8 ij	13.0 e
FAR SW1	13.9 c-g	14.0 c-f	14.0 b
FAR SW3	15.2 a	14.0 c-g	14.6 a
FAR SW5	14.0 c-f	13.8 d-g	13.9 b
Mean	14.2 a	13.2 b	
LSD Cultivar p=0.05	0.3	P val	<0.001
LSD Management p=0.05	0.1	P val	<0.001
LSD Cultivar x Man. P=0.05	0.5	P val	<0.001

Table 9. Influence of fungicide management and cultivar on grain test weight (kg/hL). Values with different letters are statistically different.

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	Test weight (kg/hL)	Test weight (kg/hL)	Test weight (kg/hL)
Trojan (FAR Control)	59.0 -	56.2 -	57.6 d
Rockstar (FAR Control)	54.4 -	75.5 -	64.9 cd
Catapult	60.0 -	75.2 -	67.6 bc
Ascot	62.1 -	72.1 -	67.1 bc
BSWDH04-062	59.5 -	71.3 -	65.4 c
BHI120020S-11	62.8 -	75.2 -	69.0 abc
Coota	53.8 -	69.6 -	61.7 cd
FAR SW4	70.3 -	76.2 -	73.2 ab
FAR SW2	73.0 -	75.1 -	74.0 ab
FAR SW1	75.8 -	76.2 -	76.0 a
FAR SW3	70.3 -	76.7 -	73.5 ab
FAR SW5	71.2 -	75.5 -	73.3 ab
Mean	64.3 b	72.9 a	
LSD Cultivar p=0.05	7.3	P val	<0.001
LSD Management p=0.05	3.8	P val	0.006
LSD Cultivar x Man. P=0.05	10.4	P val	0.066

Table 10. Influence of fungicide management and cultivar on grain screenings (%). Values with different letters are statistically different.

	Management Level		
	Untreated	**Full protection**	**Mean**
Cultivar	Screenings (%)	Screenings (%)	Screenings (%)
Trojan (FAR Control)	14.8 a	3.5 e	9.1 a
Rockstar (FAR Control)	12.1 b	1.9 e-i	7.0 bc
Catapult	11.2 bc	1.7 f-i	6.4 c
Ascot	10.2 c	2.6 e-h	6.4 c
BSWDH04-062	7.7 d	1.8 e-i	4.8 d
BHI120020S-11	11.3 bc	3.2 ef	7.2 bc
Coota	12.7 b	3.1 efg	7.9 b
FAR SW4	2.8 e-h	1.2 hi	2.0 e
FAR SW2	2.0 e-i	1.3 hi	1.6 e
FAR SW1	1.2 hi	0.8 i	1.0 e
FAR SW3	1.9 e-i	1.3 hi	1.6 e
FAR SW5	1.5 ghi	0.9 i	1.2 e
Mean	7.4 a	1.9 b	
LSD Cultivar p=0.05	1.2	P val	<0.001
LSD Management p=0.05	0.8	P val	<0.001
LSD Cultivar x Man. P=0.05	1.7	P val	<0.001

Disease assessments

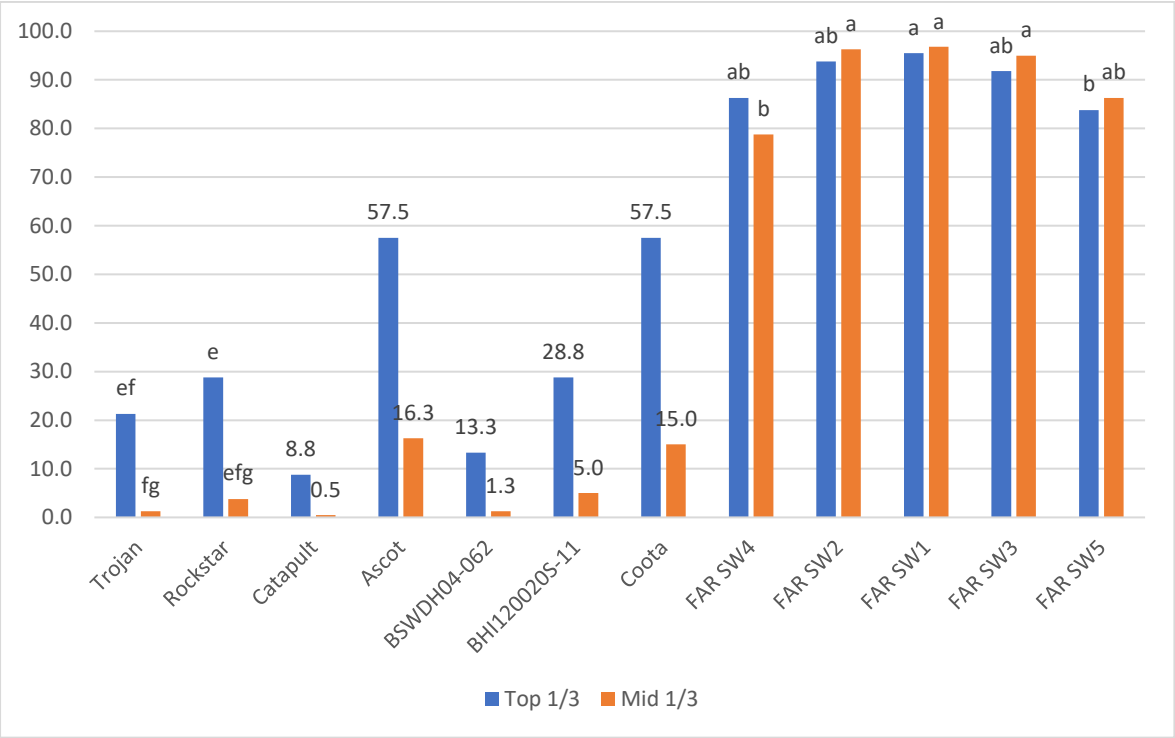

Figure 5. Green leaf area retained in the top and middle thirds of the canopy, 22 November 2022. Full protection plots only. Top third: P val <0.001, LSD = 11.0; middle third: P val = <0.001, LSD = 12.3.

Lodging

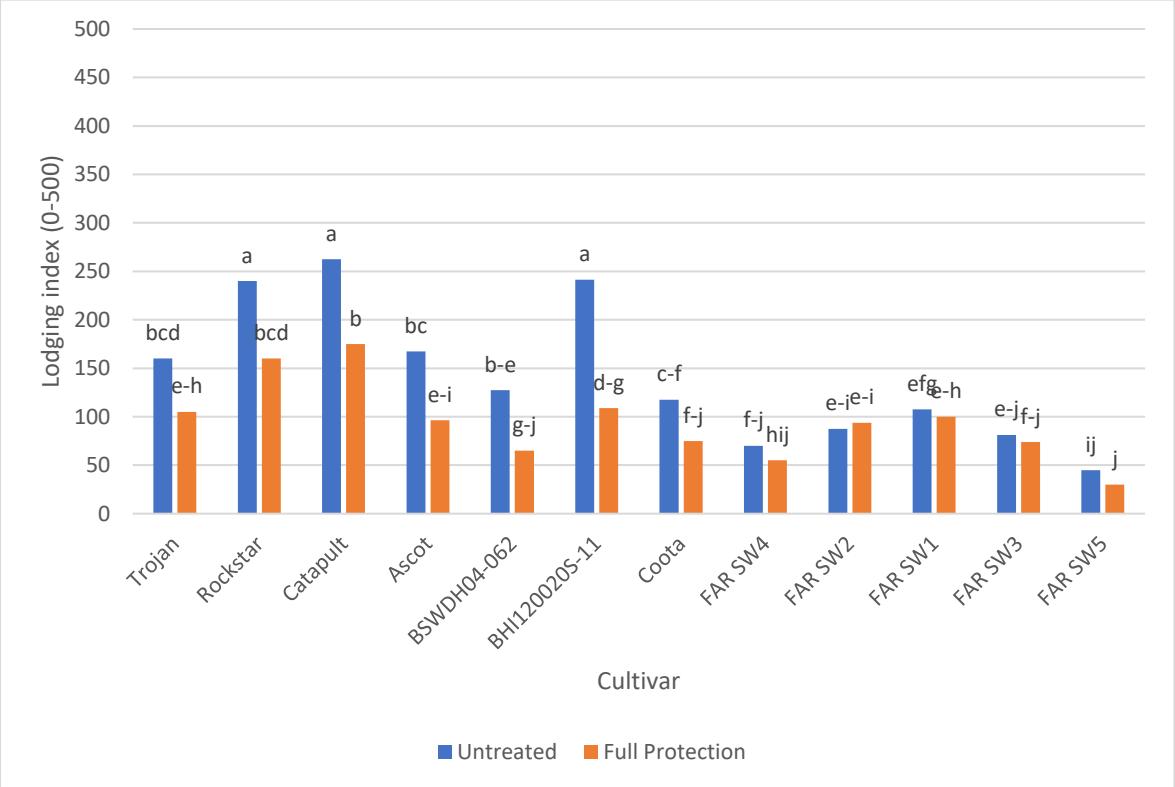

Figure 6. Influence of management and cultivar on crop lodging, assessed on 11 Jan 2023. P val 0.010, LSD = 52.1.

Trial Inputs

Table 11. Trial input and management details – Millicent SA

Sowing Date	**11-May**	
Sowing Rate:		180 seeds/m^2
Seed Treatment:		Vibrance + Gaucho
Basal Fertiliser:	11-May	100 kg MAP/ha
Nitrogen:	6-Jul	50 kg N/ha (109kg Urea)
	23-Aug	100 kg N/ha (217kg Urea)

SA Barley (FAR SAC II B22-39)

Sown: 11 May 2022
Harvested: 19 December 2022
Soil Type: Organosol (peat)
Previous Crop: Canola

Cultivar: Various
FAR Code: FAR SAC II B22-39
GSR (Apr – Nov) 674 mm

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

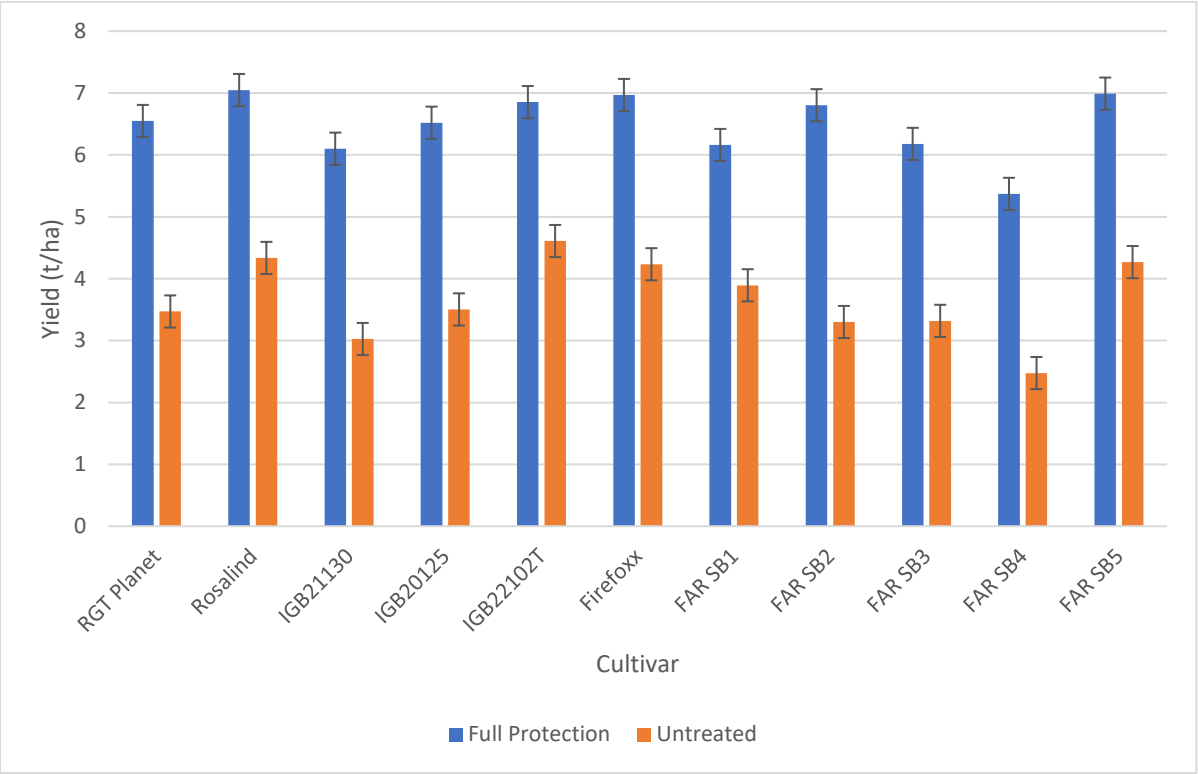

Figure 1. Influence of fungicide input and cultivar on yield performance (t/ha) – South Australian CTC. *Error bars represent the LSD (LSD = 0.52). Cultivars marked *** indicate other confidential test lines.*

Table 1. Influence of management and cultivar on yield (t/ha).

	Management level		
	Untreated	**Full protection**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
RGT Planet (FAR Control)	3.47 -	6.55 -	**5.01 b**
Rosalind	4.34 -	7.05 -	**5.69 a**
IGB21130	3.03 -	6.10 -	**4.56 c**
IGB20125	3.50 -	6.52 -	**5.01 b**
IGB22102T	4.61 -	6.85 -	**5.73 a**
Firefoxx	4.23 -	6.97 -	**5.60 a**
FAR SB1	3.89 -	6.16 -	**5.03 b**
FAR SB2	3.30 -	6.80 -	**5.05 b**
FAR SB3	3.32 -	6.18 -	**4.75 bc**
FAR SB4	2.48 -	5.37 -	**3.92 d**
FAR SB5	4.27 -	6.99 -	**5.63 a**
Mean	**3.68 b**	**6.50 a**	
LSD Cultivar p = 0.05	0.37	**P val**	<0.001
LSD Management p = 0.05	0.35	**P val**	<0.001
LSD Cultivar x Man. p = 0.05	ns	P val	0.057

Table 2. Influence of management and cultivar on protein (%).

	Management level		
	Untreated	Full protection	Mean
Cultivar	Protein %	Protein %	Protein %
RGT Planet (FAR Control)	14.0 cde	13.8 d-h	13.9 cde
Rosalind	13.9 d-g	14.3 bc	14.1 bc
IGB21130	13.6 e-h	13.5 gh	**13.6 fg**
IGB20125	13.5 hi	13.6 fgh	**13.5 fg**
IGB22102T	13.6 e-h	13.1 i	**13.4 g**
Firefoxx	13.6 e-h	13.8 d-h	**13.7 def**
FAR SB1	14.3 bc	14.4 b	**14.3 b**
FAR SB2	13.7 e-h	13.8 d-h	**13.7 def**
FAR SB3	13.9 c-f	14.0 c-f	**13.9 cd**
FAR SB4	15.3 a	14.1 bcd	**14.7 a**
FAR SB5	13.6 e-h	13.7 e-h	**13.7 ef**
Mean	**13.9 -**	**13.8** -	
LSD Cultivar p = 0.05	0.3	**P val**	<0.001
LSD Management p = 0.05	ns	**P val**	0.583
LSD Cultivar x Man. p = 0.05	0.4	**P val**	<0.001

Table 3. Influence of management and cultivar on test weight (kg/hL).

	Management level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Test wt kg/hL**		**Test wt kg/hL**		**Test wt kg/hL**	
RGT Planet (FAR Control)	65.9	def	64.9	fgh	**65.4**	c
Rosalind	65.9	def	65.0	fg	**65.4**	c
IGB21130	61.4	k	63.8	hi	**62.6**	e
IGB20125	66.3	de	63.6	ij	**65.0**	c
IGB22102T	66.5	cd	68.9	a	**67.7**	a
Firefoxx	65.2	efg	62.6	j	**63.9**	d
FAR SB1	66.4	cd	61.3	k	**63.9**	d
FAR SB2	67.6	bc	67.9	ab	**67.7**	a
FAR SB3	67.7	b	65.0	fg	**66.3**	b
FAR SB4	64.7	ghi	65.4	d-g	**65.0**	c
FAR SB5	68.1	ab	65.0	fg	**66.6**	b
Mean	66.0	-	64.9	-		
LSD Cultivar p = 0.05	0.8		P val		<0.001	
LSD Management p = 0.05	ns		P val		0.400	
LSD Cultivar x Man. p = 0.05	1.1		P val		<0.001	

Table 4. Influence of management and cultivar on retention (%).

	Management level					
	Untreated		Full protection		Mean	
Cultivar	Retention %		Retention %		Retention %	
RGT Planet (FAR Control)	43.3	gh	75.8	ab	59.6	b
Rosalind	34.7	i	70.4	cd	**52.6**	**d**
IGB21130	21.3	j	70.8	bcd	**46.0**	**e**
IGB20125	44.5	g	77.2	a	**60.9**	**b**
IGB22102T	35.0	i	73.3	abc	**54.2**	**cd**
Firefoxx	38.3	hi	67.6	d	**53.0**	**d**
FAR SB1	54.4	f	78.3	a	**66.4**	**a**
FAR SB2	42.9	gh	77.7	a	**60.3**	**b**
FAR SB3	42.0	gh	73.3	abc	**57.7**	**bc**
FAR SB4	23.5	j	62.0	e	**42.8**	**e**
FAR SB5	54.7	f	77.9	a	**66.3**	**a**
Mean	**39.5**	**b**	**73.1**	**a**		
LSD Cultivar p = 0.05	3.7		**P val**		<0.001	
LSD Management p = 0.05	5.9		**P val**		<0.001	
LSD Cultivar x Man. p = 0.05	5.3		**P val**		<0.001	

Table 5. Influence of management and cultivar on screenings (%).

	Management level					
	Untreated		**Full protection**		**Mean**	
Cultivar	**Screenings %**		**Screenings %**		**Screenings %**	
RGT Planet (FAR Control)	22.6	bcd	7.4	k	**15.0**	**cd**
Rosalind	19.4	def	9.8	h-k	**14.6**	**cd**
IGB21130	36.2	a	11.4	hij	**23.8**	**a**
IGB20125	20.6	cde	7.5	k	**14.0**	**cde**
IGB22102T	21.8	bcd	7.1	k	**14.5**	**cd**
Firefoxx	24.5	b	11.7	hi	**18.1**	**b**
FAR SB1	16.2	fg	7.0	k	**11.6**	**e**
FAR SB2	21.2	bcd	7.0	k	**14.1**	**cde**
FAR SB3	23.7	bc	9.0	ijk	**16.3**	**bc**
FAR SB4	39.1	a	13.2	gh	**26.2**	**a**
FAR SB5	17.1	ef	7.8	jk	**12.5**	**de**
Mean	**23.9**	**a**	**9.0**	**b**		
LSD Cultivar p = 0.05	2.7		**P val**		<0.001	
LSD Management p = 0.05	2.5		**P val**		<0.001	
LSD Cultivar x Man. p = 0.05	3.8		**P val**		<0.001	

Disease assessment data

The principal disease evident in the trial was net form of net blotch (NFNB). The level of disease was recorded on 10 November when the majority of spring cultivars were in late milk/early dough (Figure 2). Brackling scores were recorded prior to harvest on 18 December (Figure 3).

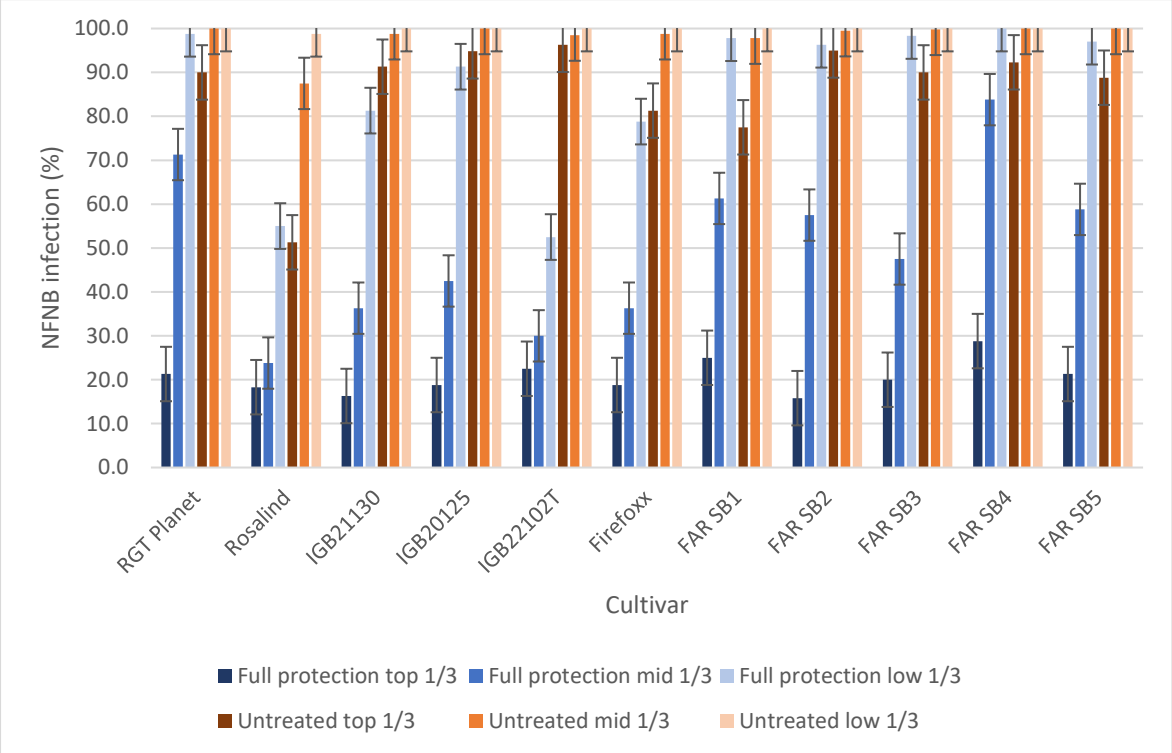

Figure 2. Influence of fungicide management (see Table 6 for full protection treatment details) on net form of net blotch infection in six cultivars across three canopy layers (top, middle and lower thirds) at the South Australian CTC. Top LSD = 12.4, middle LSD = 11.7 and lower LSD = 10.4.

Brackling

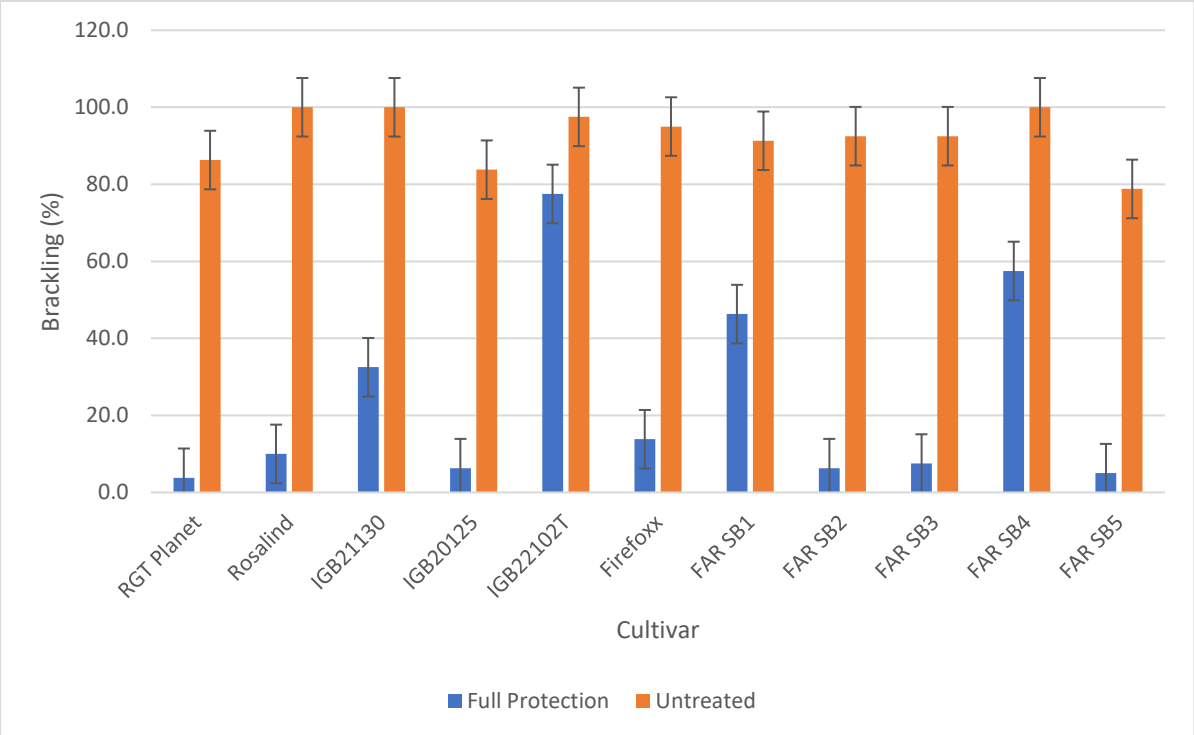

Figure 3. Influence of canopy management and cultivar on brackling (0 -100%) at the South Australian CTC. Error bars represent the LSD (LSD = 15.2).

Trial Inputs

Table 6. Trial input and management details.

Sowing Date:		11 May 2022	
Sowing Rate:		180 Seeds/m^2	
Established Population:			
Seed Treatment:		Vibrance + Gaucho	
Basal Fertiliser:	11 May 2022	100 MAP kg/ha	
Nitrogen:	6 Jul	50 kg N/ha (109 kg urea/ha)	
	23 Aug	100 kg N/ha (217 kg urea/ha)	
		Untreated	**Full Protection**
Plant Growth Regulator:	26 Aug	---	Moddus Evo 0.20 L/ha
	29 Sep	---	Moddus Evo 0.20 L/ha
Fungicide	26 Aug GS31	---	Prosaro 0.30 L/ha
	29 Sep GS39-49	---	Aviator Xpro 0.50 L/ha

Wallendbeen NSW

NSW Wheat (FAR NSW II W22-40)

Sown: 22 April 2022
Harvested: 5 Jan 2023
Soil Type: Red Clay Loam
Previous Crop: Canola
Cultivar: Various
GSR (Apr-Nov): 548mm

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

The trial was subject to very high infection of stripe rust and to lesser extent septoria tritici blotch (STB). This high disease pressure led to Illabo being the highest yielding cultivar both with and without the Hyper Yielding Crops (HYC) 3 spray fungicide programme (Figure 1).

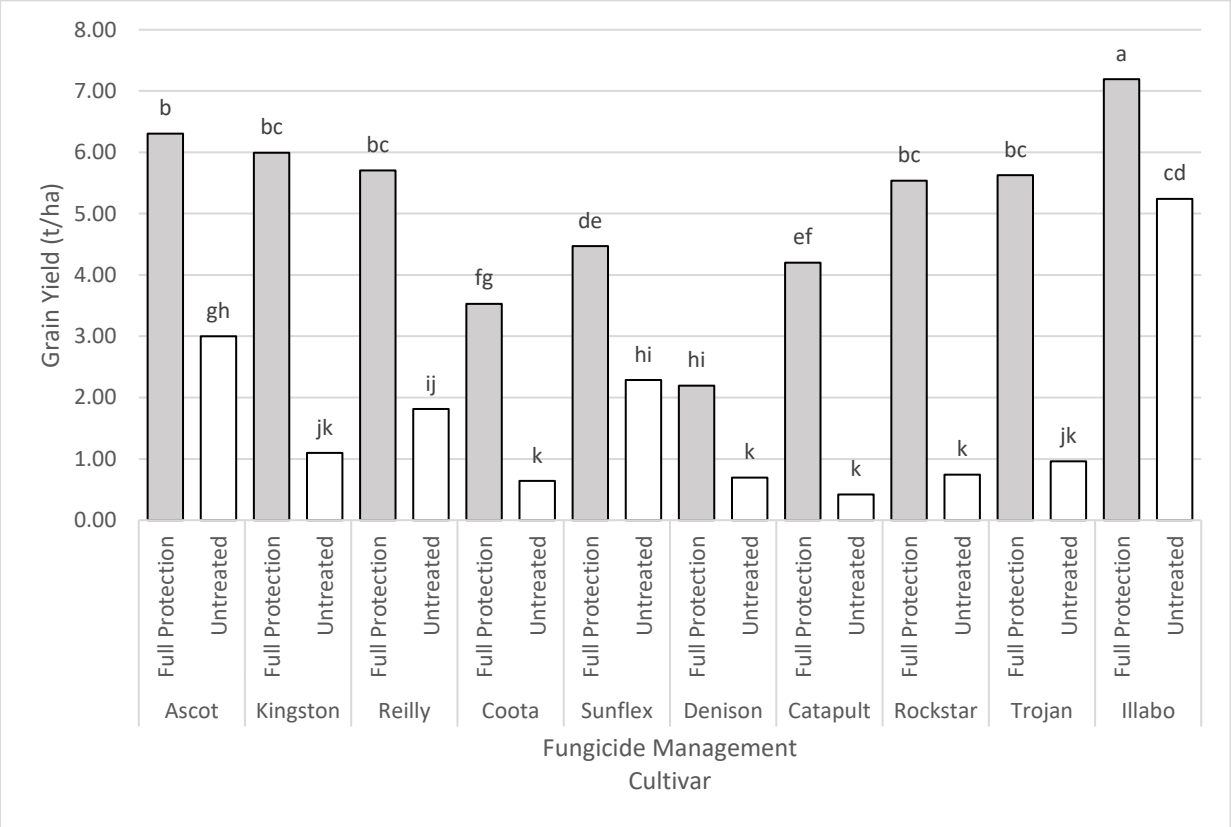

Figure 7. Influence of fungicide management and cultivar on grain yield (t/ha). *Values with different letters represent statistically different yields*. P val<0.001, LSD=0.86t/ha.

Table 12. Influence of fungicide management and cultivar on grain Protein (%). *Values with different letters are statistically different.*

	Management Level		
	Untreated	Full protection	**Mean**
Cultivar	Protein (%)	Protein (%)	Protein (%)
Ascot	13.9 -	13.6 -	**13.8 cde**
Kingston	14.1 -	13.2 -	**13.6 cde**
Reilly	13.1 -	13.3 -	**13.2 e**
Coota	15.3 -	14.8 -	**15.0 a**
Sunflex	14.8 -	13.7 -	**14.3 abc**
Denison	14.7 -	14.1 -	**14.4 abc**
Catapult	14.0 -	14.0 -	**14.0 bcd**
Rockstar	14.7 -	14.5 -	**14.6 ab**
Trojan	13.9 -	12.9 -	**13.4 de**
Illabo	13.0 -	13.0 -	**13.0 e**
Mean	**14.14 a**	**13.7 b**	
LSD Cultivar p=0.05	0.8	P val	<0.001
LSD Management p=0.05	0.4	P val	0.034
LSD Cultivar x Man. P=0.05	ns	P val	0.709

Table 13. Influence of fungicide management and cultivar on grain test weight (kg/hL). Values with different letters are statistically different.

	Management Level		
	Untreated	Full protection	**Mean**
Cultivar	Test Weight (kg/hL)	Test Weight (kg/hL)	Test Weight (kg/hL)
Ascot	69.7 -	74.1 -	**71.9** -
Kingston	65.5 -	74.7 -	**70.1** -
Reilly	66.2 -	71.9 -	**69.0** -
Coota	61.3 -	69.6 -	**65.4** -
Sunflex	64.1 -	68.4 -	**66.2** -
Denison	59.8 -	63.0 -	**61.4** -
Catapult	57.3 -	72.5 -	**64.9** -
Rockstar	65.6 -	68.8 -	**67.2** -
Trojan	65.4 -	72.9 -	**69.1** -
Illabo	68.4 -	73.7 -	**71.0** -
Mean	**64.3 b**	**70.9 a**	
LSD Cultivar p=0.05	ns	P val	0.105
LSD Management p=0.05	0.4	P val	0.019
LSD Cultivar x Man. P=0.05	ns	P val	0.825

Table 14. Influence of fungicide management and cultivar on grain screenings (%). Values with different letters are statistically different.

	Management Level		
	Untreated	Full protection	**Mean**
Cultivar	Screenings (%)	Screenings (%)	Screenings (%)
Ascot	4.1 -	2.0 -	**3.0 bc**
Kingston	2.4 -	1.7 -	**2.1 bc**
Reilly	7.5 -	2.4 -	**5.0 b**
Coota	7.3 -	2.0 -	**4.6 b**
Sunflex	6.4 -	3.3 -	**4.8 b**
Denison	14.7 -	10.4 -	**12.5 a**
Catapult	6.5 -	2.9 -	**4.7 b**
Rockstar	5.3 -	2.0 -	**3.6 bc**
Trojan	4.0 -	2.4 -	**3.2 bc**
Illabo	1.6 -	1.2 -	**1.4 c**
Mean	**6.0 a**	**3.0 b**	
LSD Cultivar p=0.05	3.1	P val	<0.001
LSD Management p=0.05	0.9	P val	0.002
LSD Cultivar x Man. P=0.05	ns	P val	0.771

Disease assessments

The principal diseases evident in the trial were stripe rust and Septoria tritici blotch (SR and STB). The levels of both diseases were recorded when each cultivar was booting (figure 2 & 3), and again during grain fill (figures 4, 5 & 6).

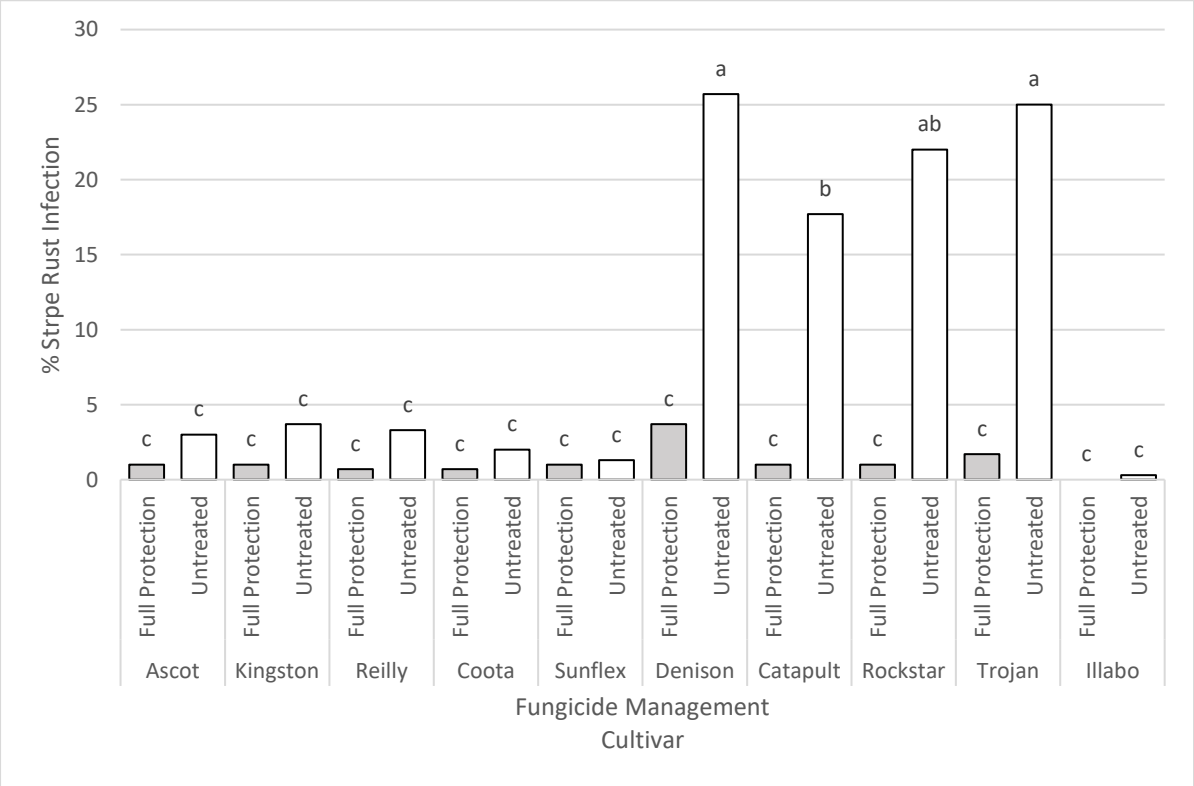

Figure 8. Stripe Rust infection levels assessed during booting stage. P val<0.001, LSD=5.56%.

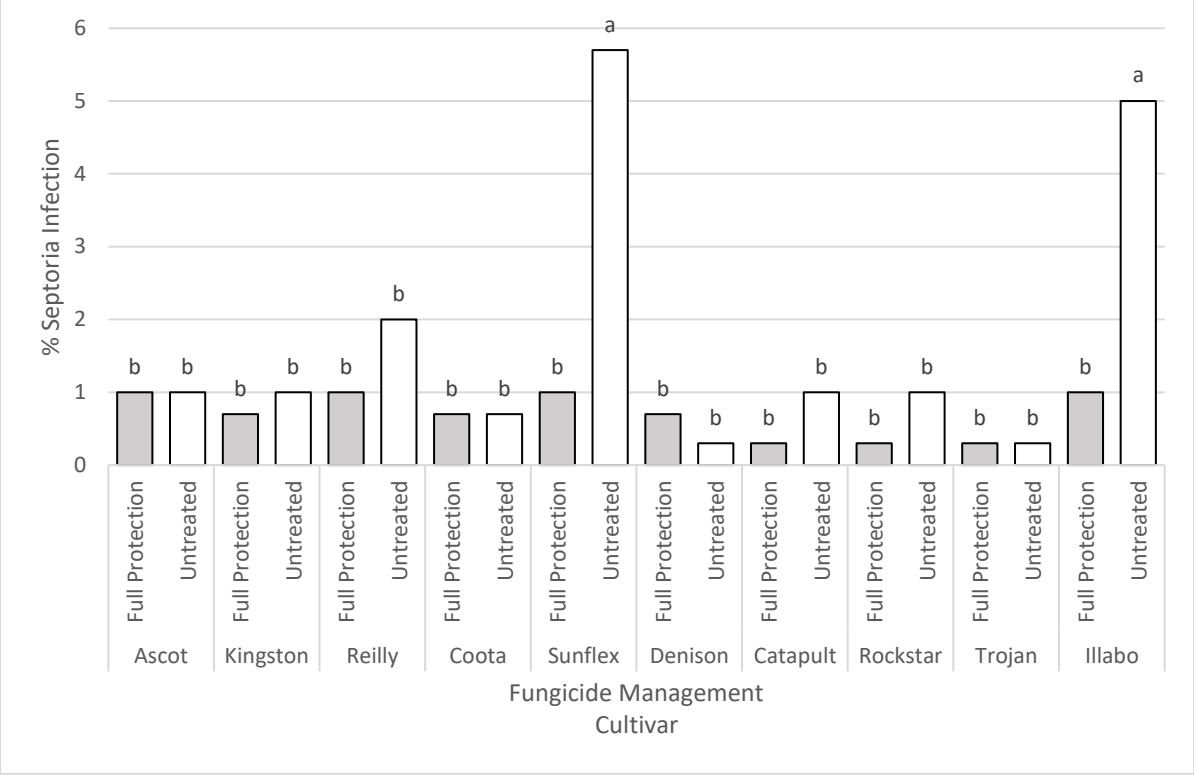

Figure 9. Septoria Tritici Blotch infection levels assessed during booting stage. P val=0.008, LSD=1.76%.

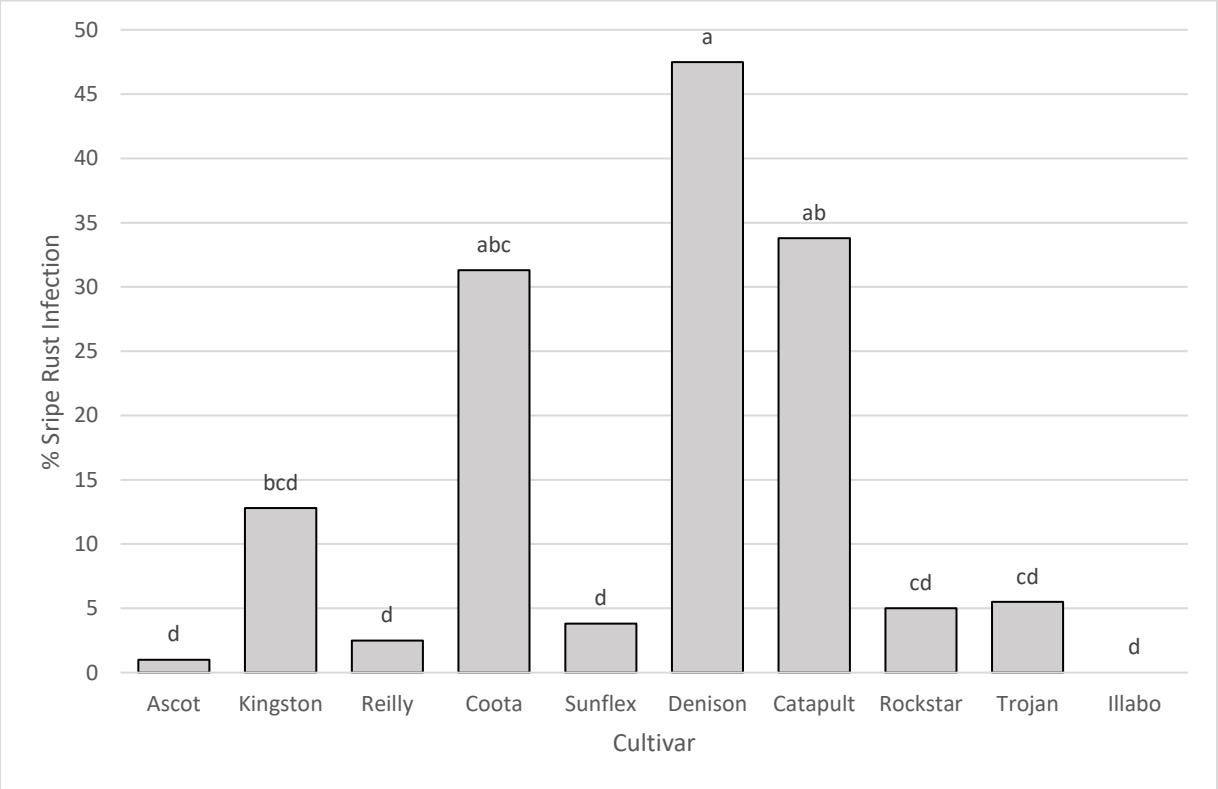

Figure 10. Stripe Rust infection levels assessed during grain fill, fungicide treated plots only (untreated plots not assessed due to lack of green leaf area). P val=0.007, LSD=26.6%.

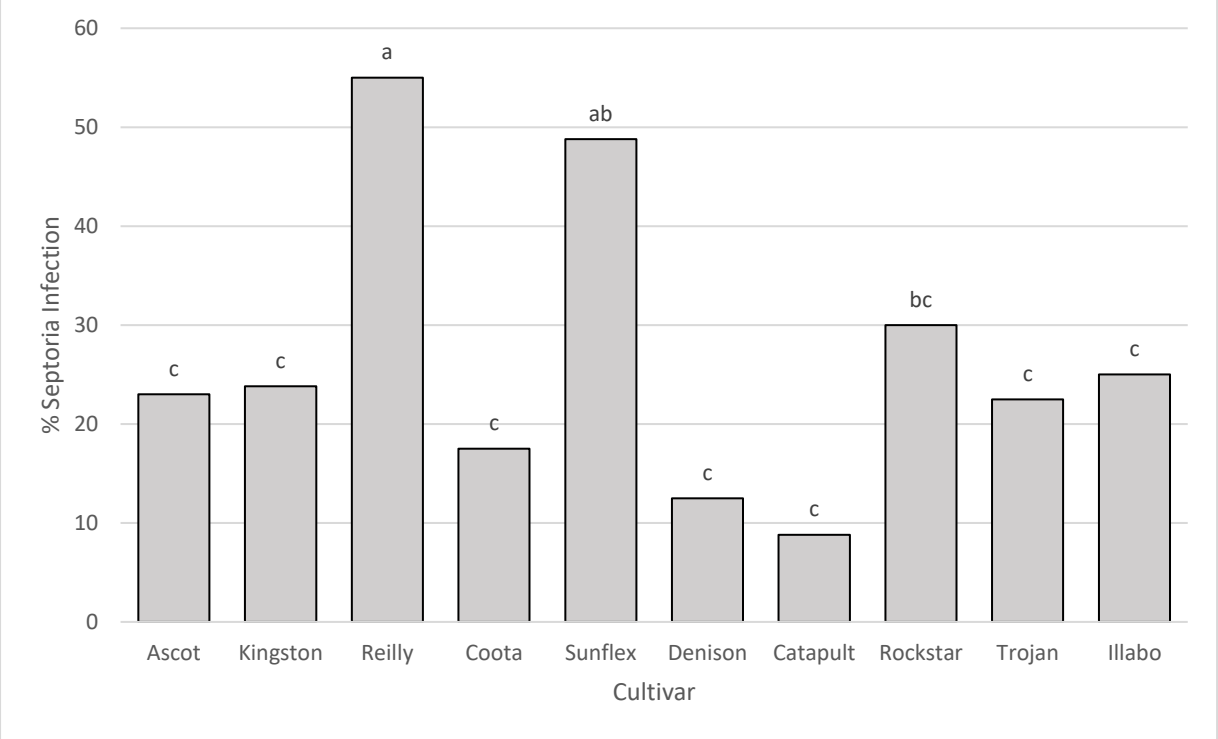

Figure 11. Septoria tritici blotch infection levels assessed during grain fill, untreated plots not assessed due to lack of leaf area. *Values with different letters are statistically different.* P val=0.006, LSD=23.1%.

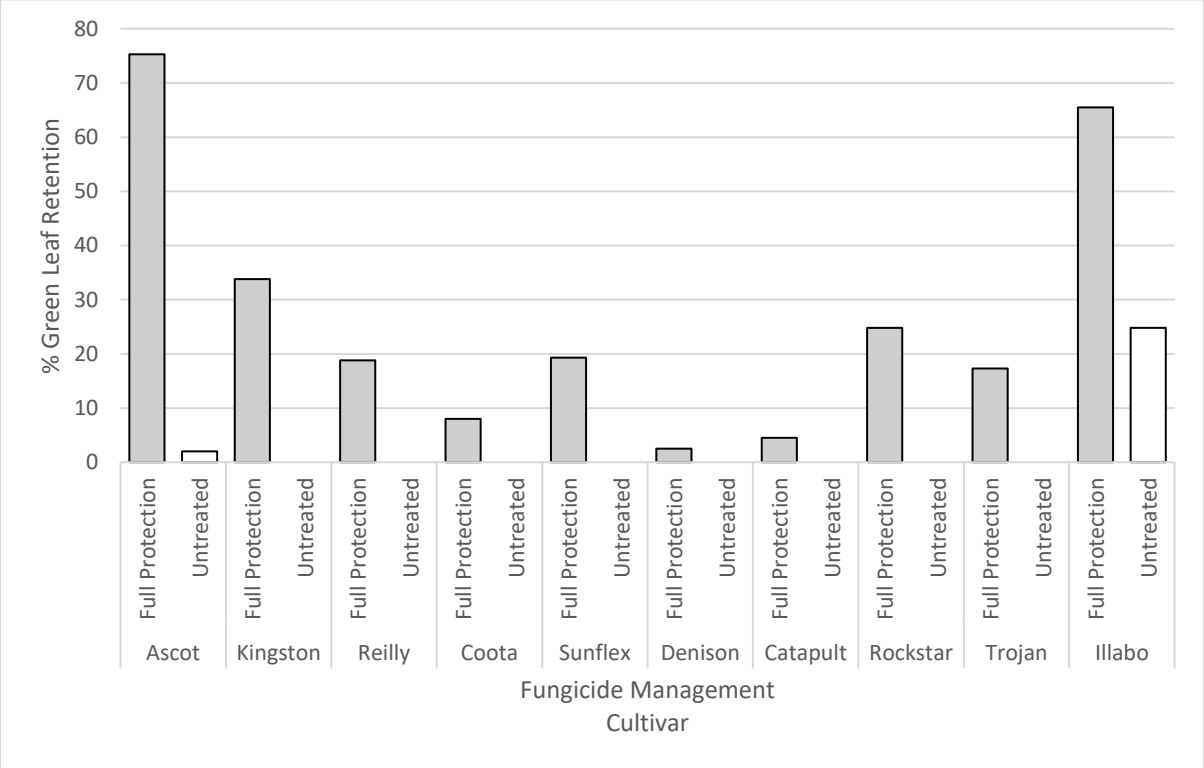

Figure 12. Green leaf retention levels assessed during grain fill. P val<0.001, LSD=16.5%.

Lodging

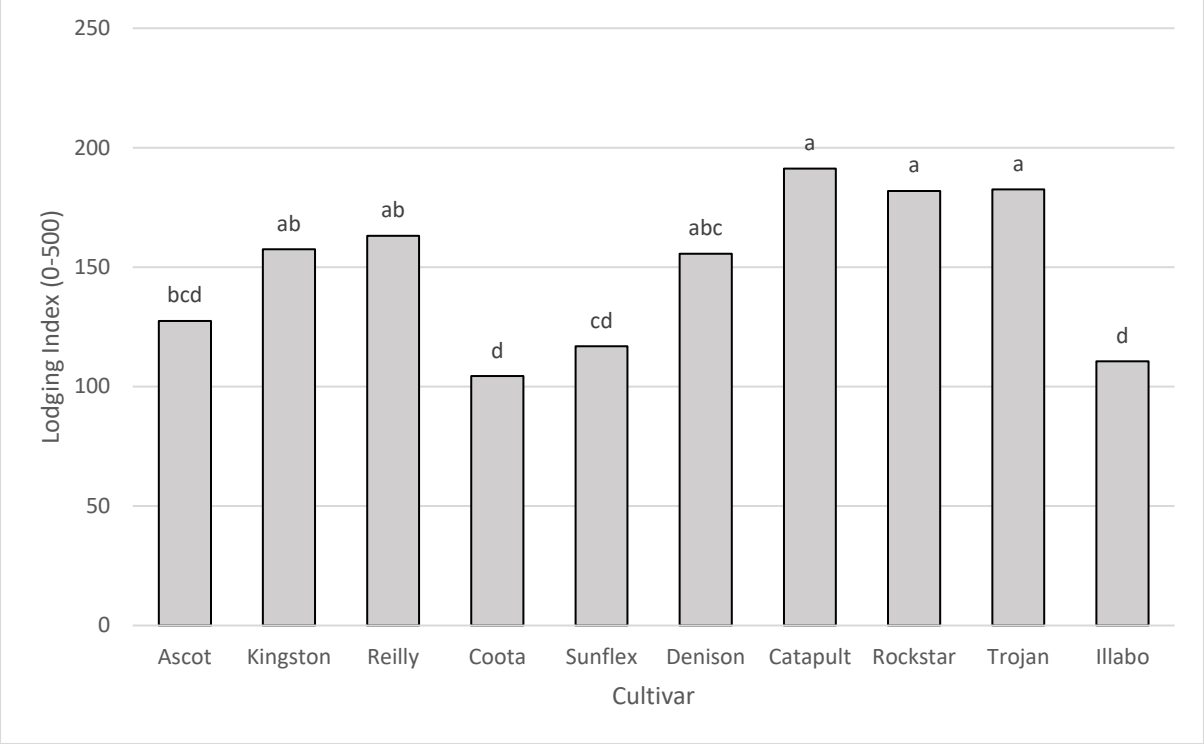

Figure 13. Influence of cultivar on crop lodging, assessed 15th Nov. *Values with different letters are statistically different*. P val<0.001, LSD=40.6.

Trial Inputs

Table 15. Trial input and management details – Wallendbeen NSW

Sowing Date	22-Apr-22	
Sowing Rate:		180 Seeds/m^2
Established Population (mean):		134 Plants/m^2
Seed Treatment:		Vibrance + Gaucho
Basal Fertiliser:	22-Apr-22	120kg MAP/ha
Nitrogen:	21-Jun	50kg N/ha (109kg Urea)
	9-Aug	100kg N/ha (217kg Urea)

Table 16. Fungicide application dates and timing specific for each cultivar.

Fungicide Applications						
	Application 1		Application 2		Application 3	
	Prosaro 300ml/ha		Aviator Xpro 500ml/ha		Opus 500ml/ha	
Cultivar	Growth Stage	Date	Growth Stage	Date	Growth Stage	Date
Rockstar	GS31	14-Jul	GS41	26-Aug	GS59	20-Sep
Trojan	GS31	14-Jul	GS39	26-Aug	GS59	20-Sep
Illabo	GS31	9-Aug	GS43	20-Sep	GS58	3-Oct
Coota	GS30	14-Jul	GS37	26-Aug	GS57	20-Sep
Sunflex	GS31	14-Jul	GS41	5-Sep	---	---
Denison	GS30	14-Jul	GS41	5-Sep	GS59	3-Oct
Catapult	GS31	14-Jul	GS37	26-Aug	GS58	20-Sep
Ascot	GS30	14-Jul	GS41	26-Aug	GS57	20-Sep
Kingston	GS31	14-Jul	GS47	5-Sep	GS59	20-Sep
Reilly	GS30	14-Jul	GS41	26-Aug	GS59	20-Sep

* Sunflex missed head emergence spray due to incorrect marking on map. Had been marked as applied but spray records show it wasn't applied.

Visual Appearance of Trial

The following trial at Wallendbeen was photographed from a drone on three separate occasions on 10th August, 4th October and 30th October 2022 (Figures 1, 2 and 3). The trial site was subject to very high stripe rust infection pressure caused by the pathogen *Puccinia striiformis f.sp. tritici.* The site has been confirmed as having both the 198 and 239 pathotype present. The differences in green leaf retention are primarily linked to the levels of stripe rust infection.

Figure 14. Trial photo captured 10th Aug 2022. Most Varieties at early stem elongation.

Figure 15. Trial photo captured 4th October 2022. Most varieties flowering.

Figure 16. Trial photo captured 30th October 2022. Most varieties mid grain fill.

Esperance, WA

WA Barley (FAR WAE II B22-41)

Sown: 17 April 2022
Harvested: 14 November 2022
Soil Type: Sandy duplex

Cultivar: Various
Previous Crop: Canola
GSR (Apr – Oct) – 599.8 mm

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

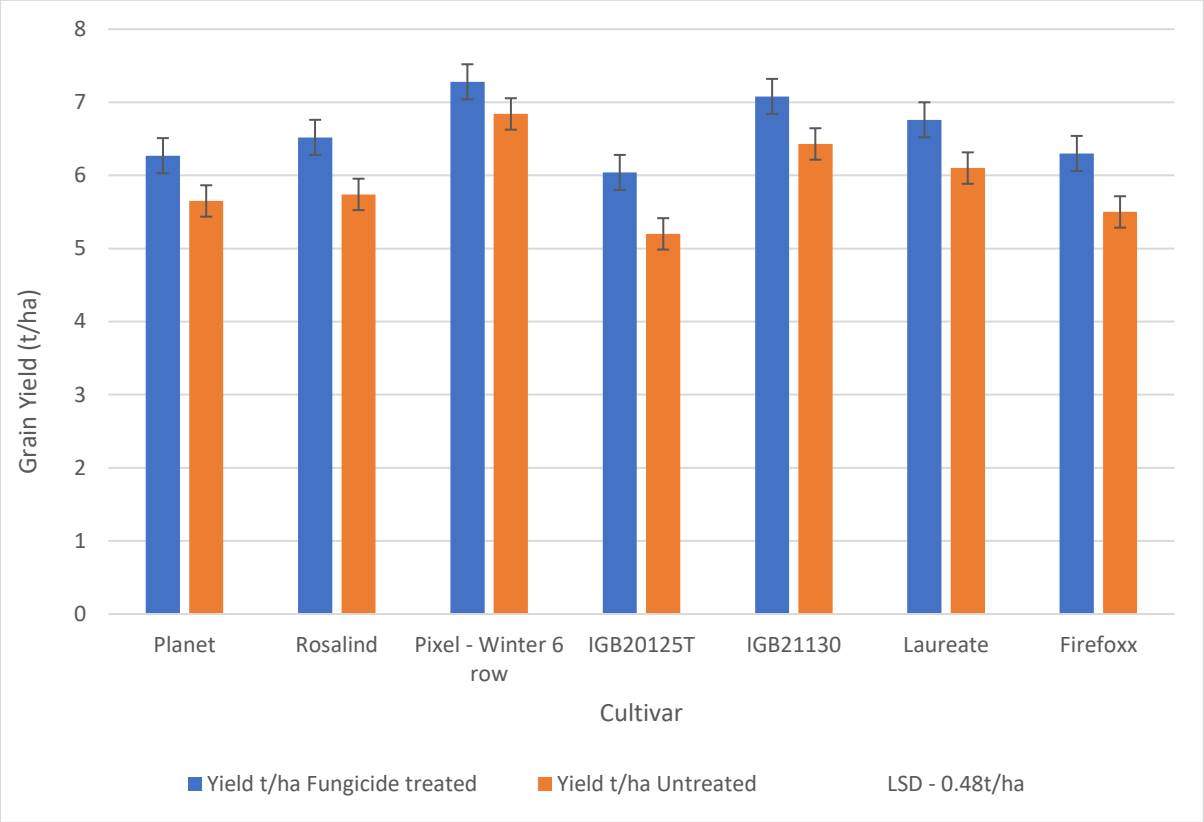

Figure 1. Influence of fungicide management on cultivar yield (t/ha) performance at Esperance CTC

Table 1. Influence of fungicide management on cultivar and management yield (t/ha) and quality

		Yield	Protein	Test Wt	Screenings	Yield (100 = trial mean)
		t/ha	%	kg/hL	%	%
Fungicide treated	Planet	6.27 ef	10.9 bc	63.6 b	1.0 d	100.1
	Rosalind	6.52 cde	11.3 abc	65.7 a	1.9 cd	104.1
	Pixel*	7.28 a	9.7 d	60.6 e	4.4 a	116.2
	IGB20125T	6.04 fg	11.0 bc	63.2 b	0.9 d	96.4
	IGB21130	7.08 ab	10.8 c	62.9 bc	1.9 cd	113.0
	Laureate	6.76 bcd	10.7 c	63.4 b	1.2 d	107.9
	Firefoxx	6.30 def	11.1 bc	62.9 bc	1.9 cd	100.5
Untreated	Planet	5.65 ghi	11.0 bc	62.8 bc	1.8 d	90.1
	Rosalind	5.74 gh	12.0 a	65.0 a	3.5 ab	91.6
	Pixel*	6.84 abc	9.7 d	60.3 e	3.8 ab	109.2
	IGB20125T	5.20 i	11.6 ab	62.4 cd	1.7 d	83.1
	IGB21130	6.43 c-f	10.8 c	62.2 cd	3.1 bc	102.7
	Laureate	6.10 efg	10.8 c	63.0 bc	1.8 d	97.4
	Firefoxx	5.50 hi	11.2 bc	61.9 d	3.6 ab	87.8
	Mean	**6.26**	**10.9**	**62.9**	**2.3**	**100.0**
	LSD	0.48	0.66	0.81	1.24	7.61
	P value	<0.001	<0.001	<0.001	<0.001	<0.001

*6 row Winter barley

Table 2. Yield (t/ha) and grain quality of seven cultivars and two fungicide managements.

	Yield	Protein	Test Wt	Screenings	Yield (100 = trial mean)
Cultivar	t/ha	%	kg/hL	%	%
Planet	5.96 de	11.0 bc	63.2 b	1.4 c	95.1
Rosalind	6.13 cd	11.6 a	65.4 a	2.7 b	97.9
Pixel*	7.06 a	9.7 d	60.5 d	4.1 a	112.7
IGB20125T	5.62 e	11.3 ab	62.8 bc	1.3 c	89.7
IGB21130	6.75 ab	10.8 c	62.6 c	2.5 b	107.8
Laureate	6.43 bc	10.7 c	63.2 b	1.5 c	102.7
Firefoxx	5.90 de	11.1 bc	62.4 c	2.8 b	94.1
Management					
Full Fungicide	6.60 a	10.8 -	63.2 a	1.9 b	105.5
Untreated	5.92 b	11.0 -	62.5 b	2.7 a	94.5
Mean	**6.26**	**10.9**	**62.9**	**2.3**	**100.0**
LSD- Cultivar	0.34	0.47	0.57	0.88	5.38
P val - Cultivar	<0.001	<0.001	<0.001	<0.001	<0.001
LSD- Management	0.18	ns	0.31	0.47	2.88
P val - Management	0.016	0.385	0.010	0.003	0.016

**6 row Winter barley*

Disease Assessment data

The principal diseases evident in the trial were spot and net form of net blotch (SFNB & NFNB). The levels of both diseases were recorded in early August when the majority of spring cultivars were heading/flowering (Figure 2 & 3).

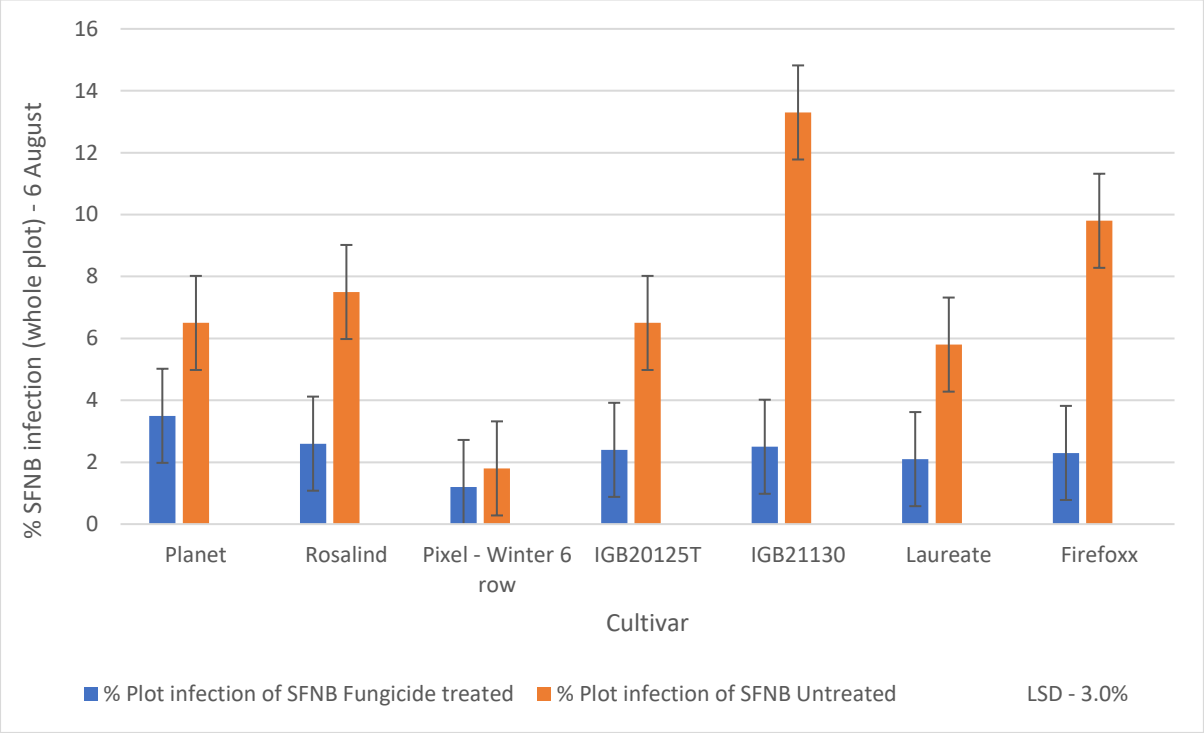

Figure 2. Influence of fungicide management on cultivar SFNB plot infection – treated and untreated 6 August

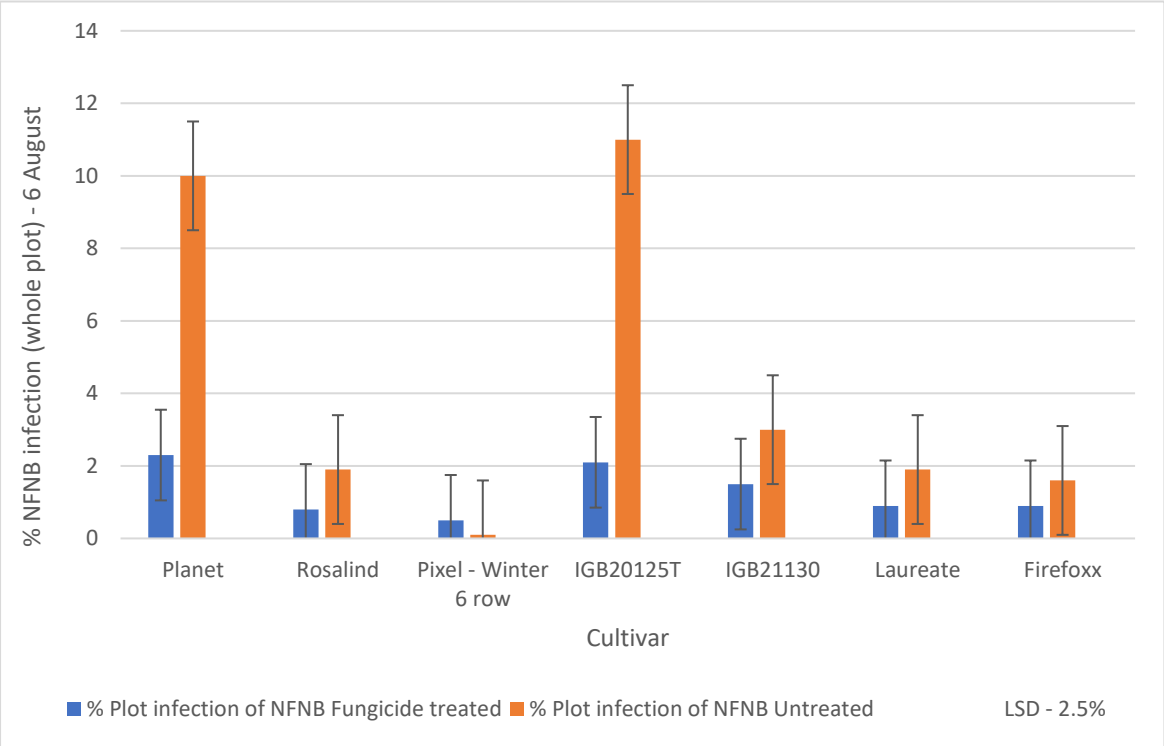

Figure 3. Influence of fungicide management on cultivar NFNB plot infection – treated and untreated 6 August

Trial Inputs

Table 3. Trial input and management details – Esperance WA.

Sowing Rate:		**180 Seeds/m^2**	
Established Population:		153 plants/m2 (139-176)	
Seed Treatment:		Vibrance/Gaucho	
Basal Fertiliser:	17 Apr	71 kg/ha Summit Vigour compound 71 kg/ha MAP	
Nitrogen:	1 Jun	37kg N/ha (80kg Urea)	
	17 Jul	73kg N/ha (158kg Urea)	
		Total N 120kg N/ha	
Plant Growth Regulator:	18 Jun (16 Jul Pixel)	Moddus Evo 0.20 L/ha	
Fungicide:		**Untreated**	**Full Protection**
	16 Jun GS31 (16 Jul Pixel)	---	Prosaro 0.30 L/ha
	16 Jul GS45 -51 (13 Aug Pixel)	---	Radial 0.84L /ha

Meteorological Data

Gnarwarre, Victoria

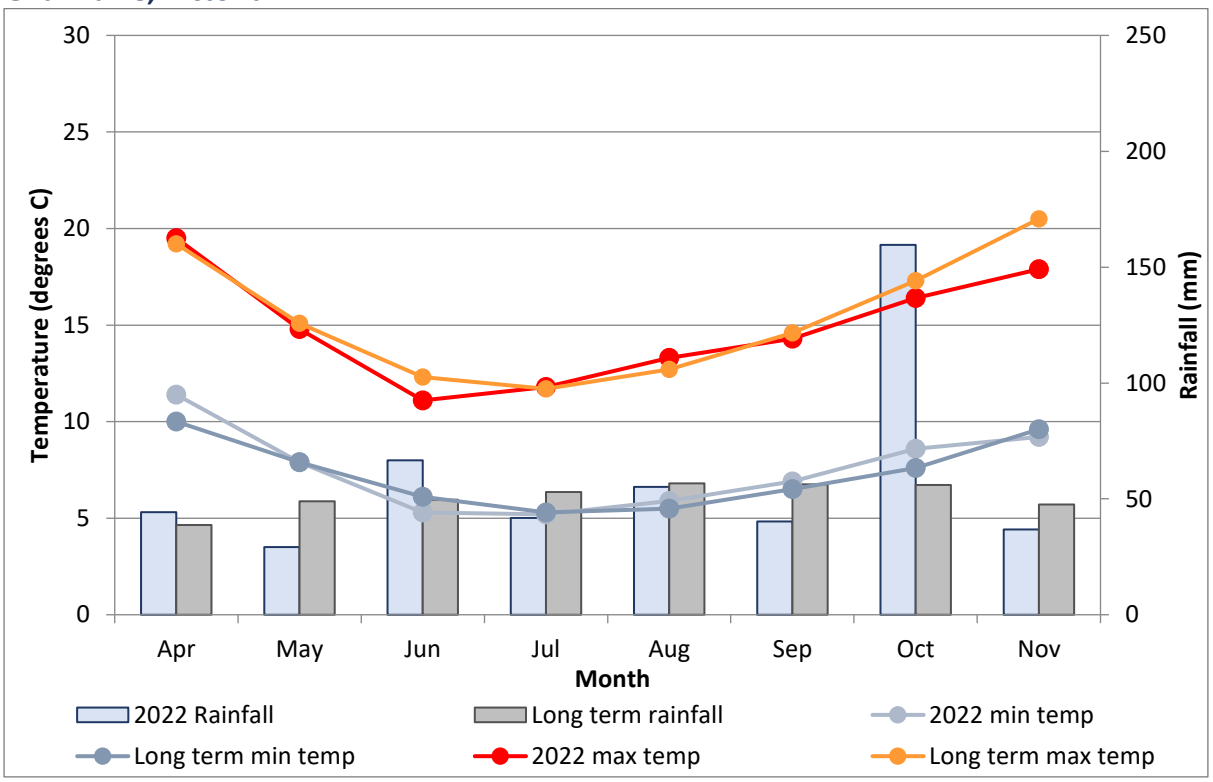

Figure 1. 2022 growing season rainfall and long-term rainfall (1898-2022) (recorded at Winchelsea (Post Office)), 2022 min and max temperatures and long-term min and max temperatures (2000-2022) (recorded at Mount Gellibrand). *Rainfall April to November= 473.6mm.*

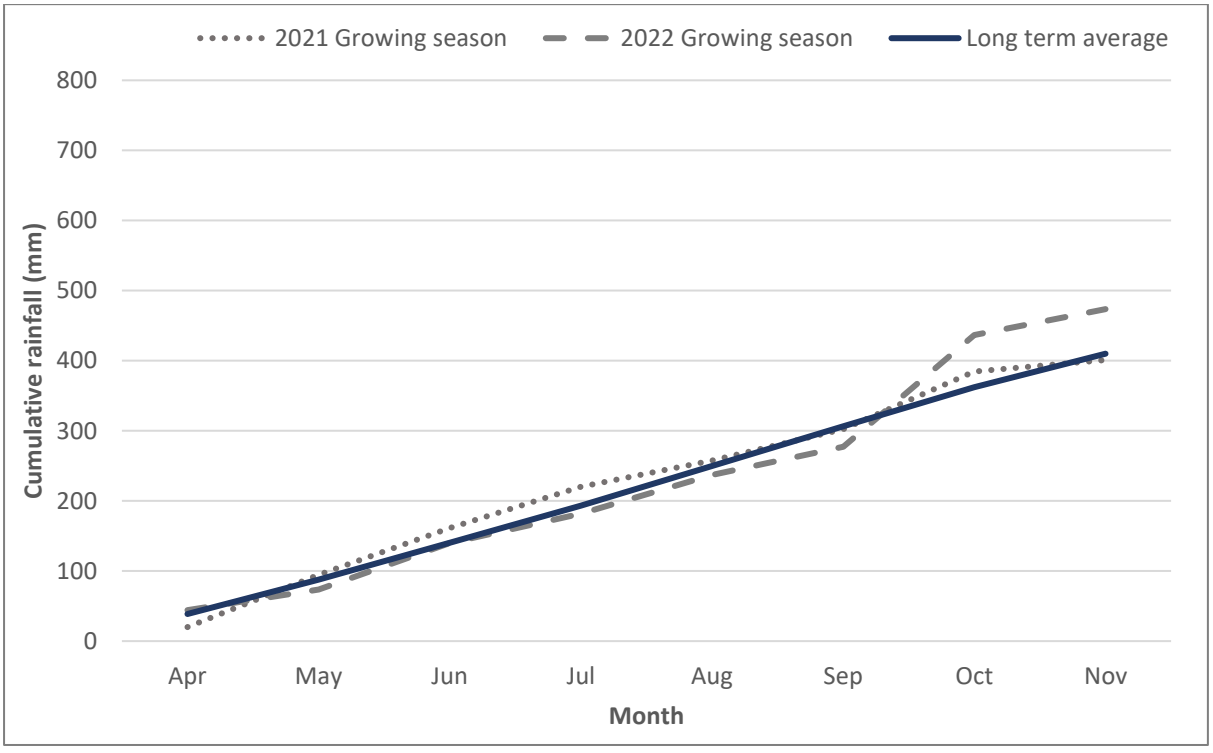

Figure 2. Cumulative growing season rainfall for 2021, 2022 and the long-term average for the growing season (April to November).

Millicent, SA

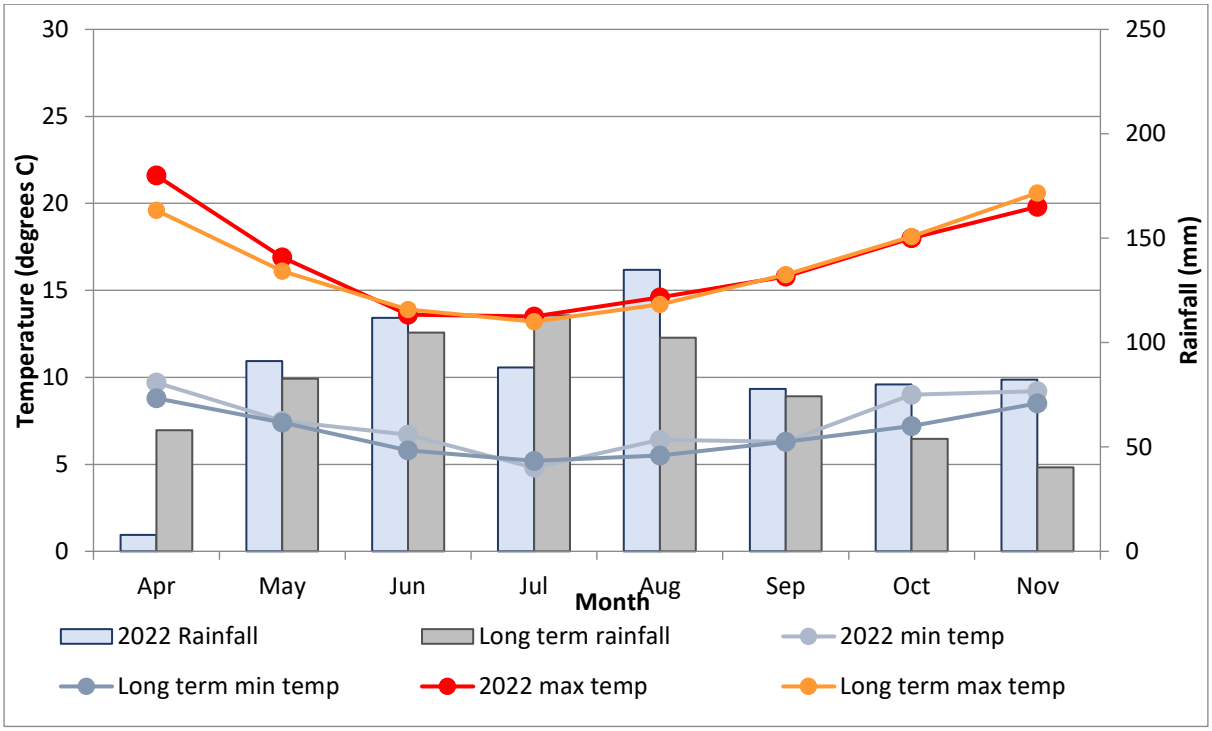

Figure 1. 2022 growing season and long-term rainfall recorded at Millicent (1877-2022) and growing season and long-term min and max temperatures recorded at Mount Gambier Aero (1941 to 2022) for the growing season (April to November). *Rainfall April to November= 674mm.*

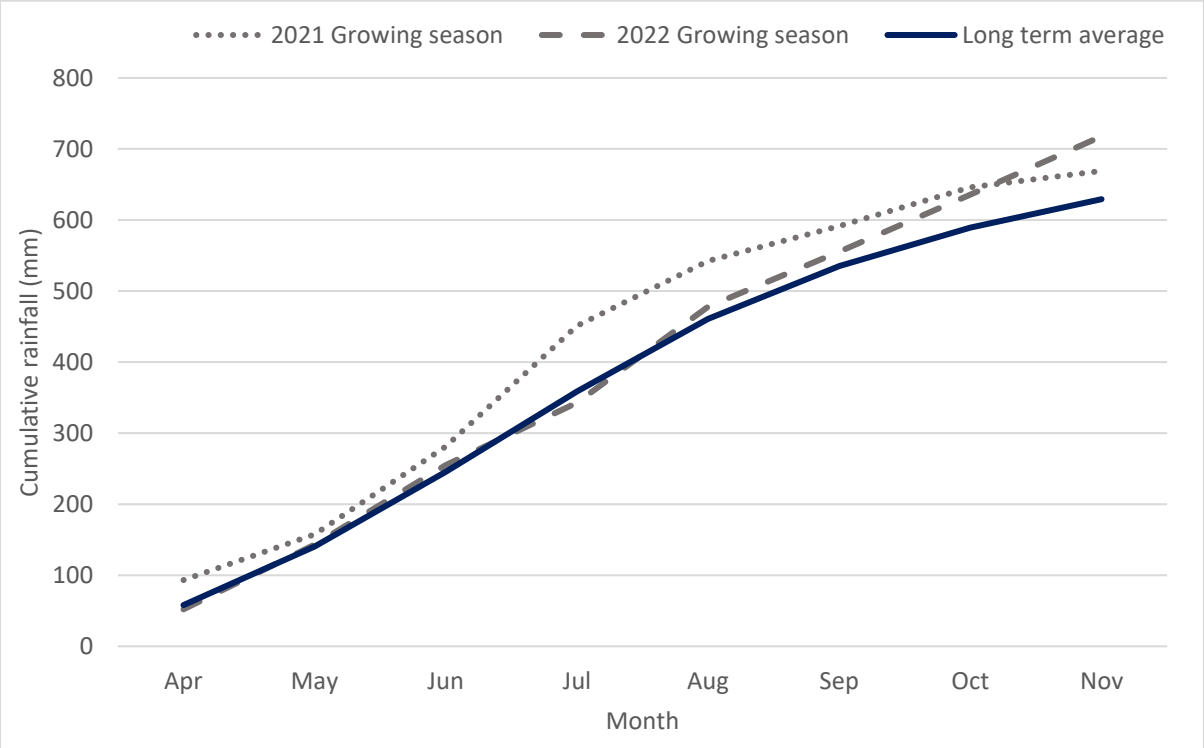

Figure 2. Cumulative growing season rainfall for 2021, 2022 and the long-term average for the growing season (April-November).

Wallendbeen NSW

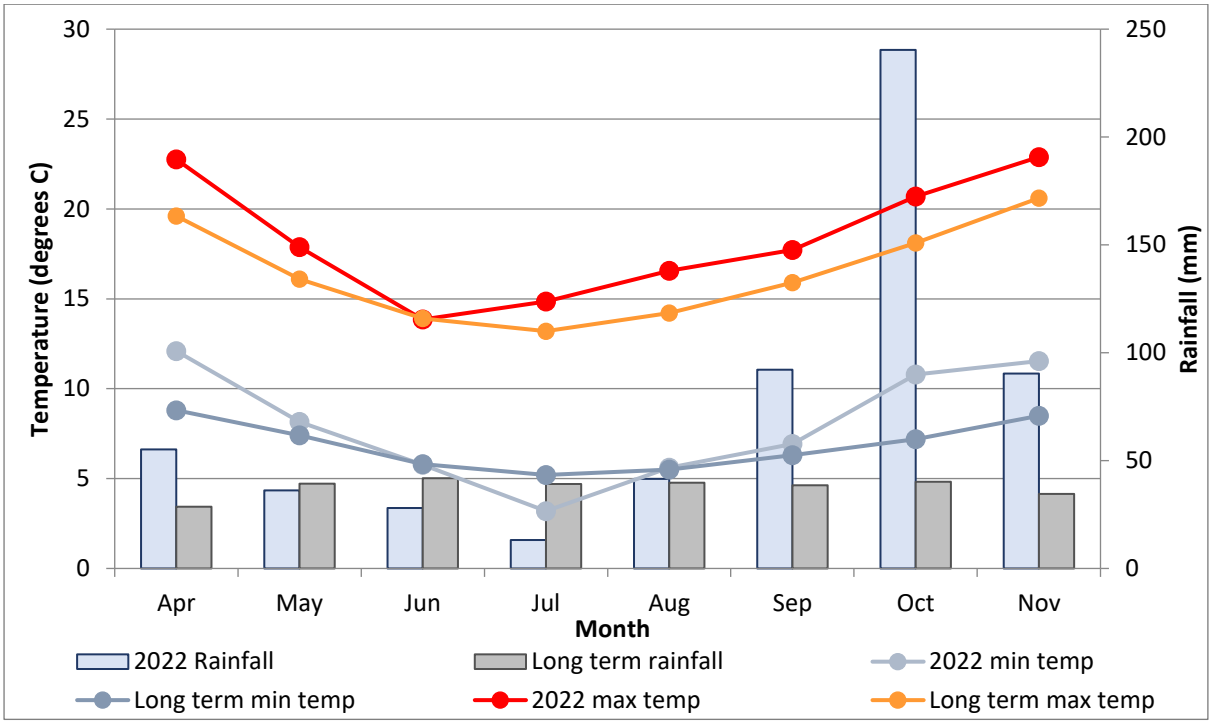

Figure 1. 2022 growing season rainfall and long-term rainfall recorded by the onsite weather station and long-term min and max temperatures recorded at Tocumwal Airport (1897 to 2021) for the growing season (April to November). *Rainfall April to November= 597.2mm.*

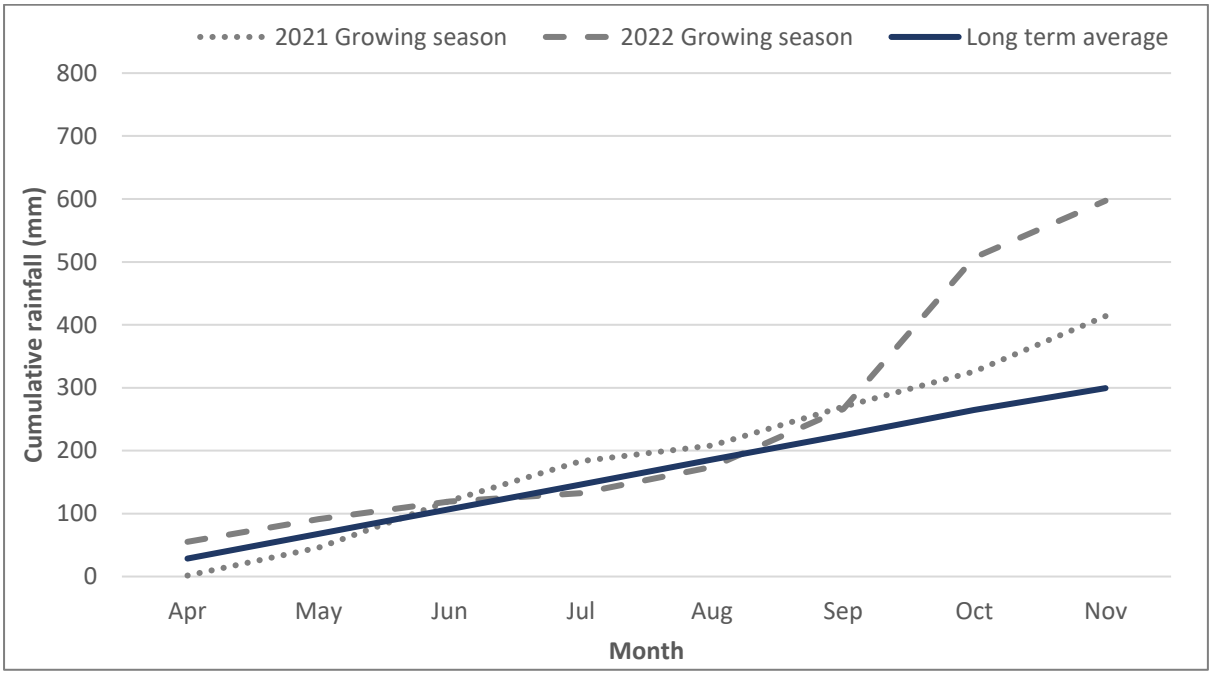

Figure 2. Cumulative growing season rainfall for 2021, 2022 and the long-term average for the growing season (April-November).

Esperance, WA

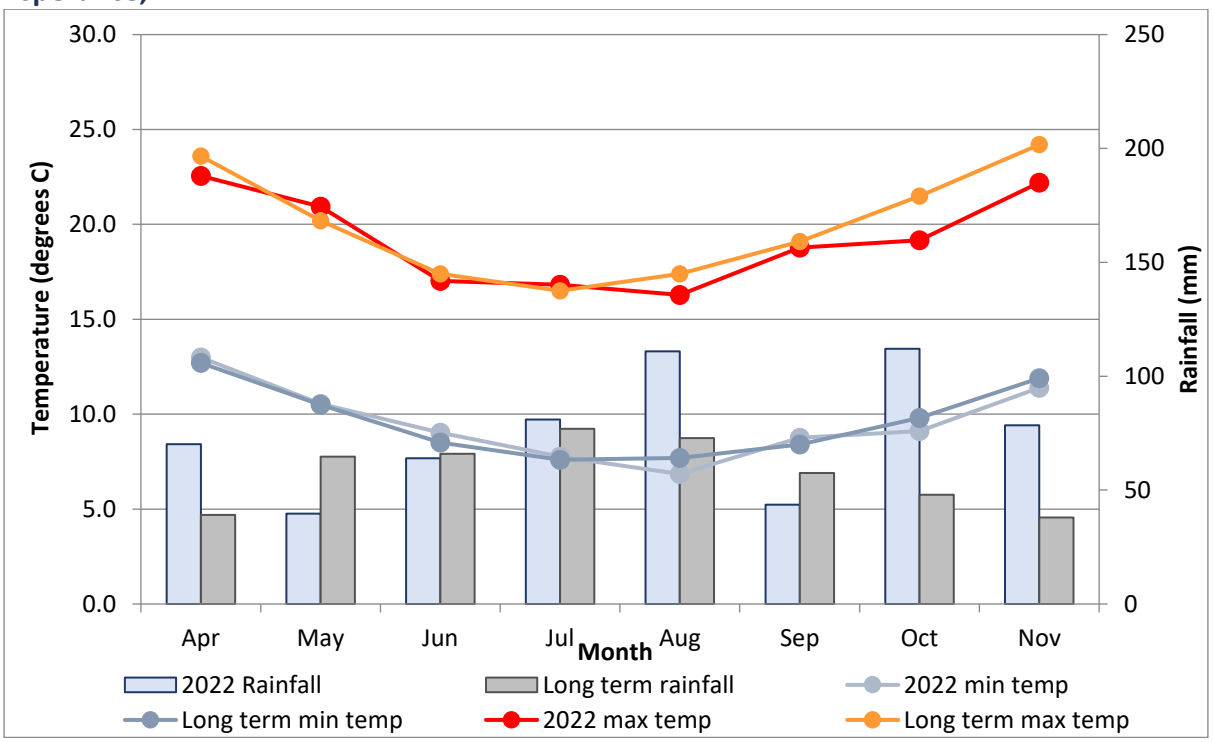

Figure 1. 2022 growing season rainfall and long-term rainfall, 2022 min and max temperatures and long-term min and max temperatures (1950-2022) (recorded at Esperance Aero). *Growing season rainfall (April to October) = 599.8mm.*

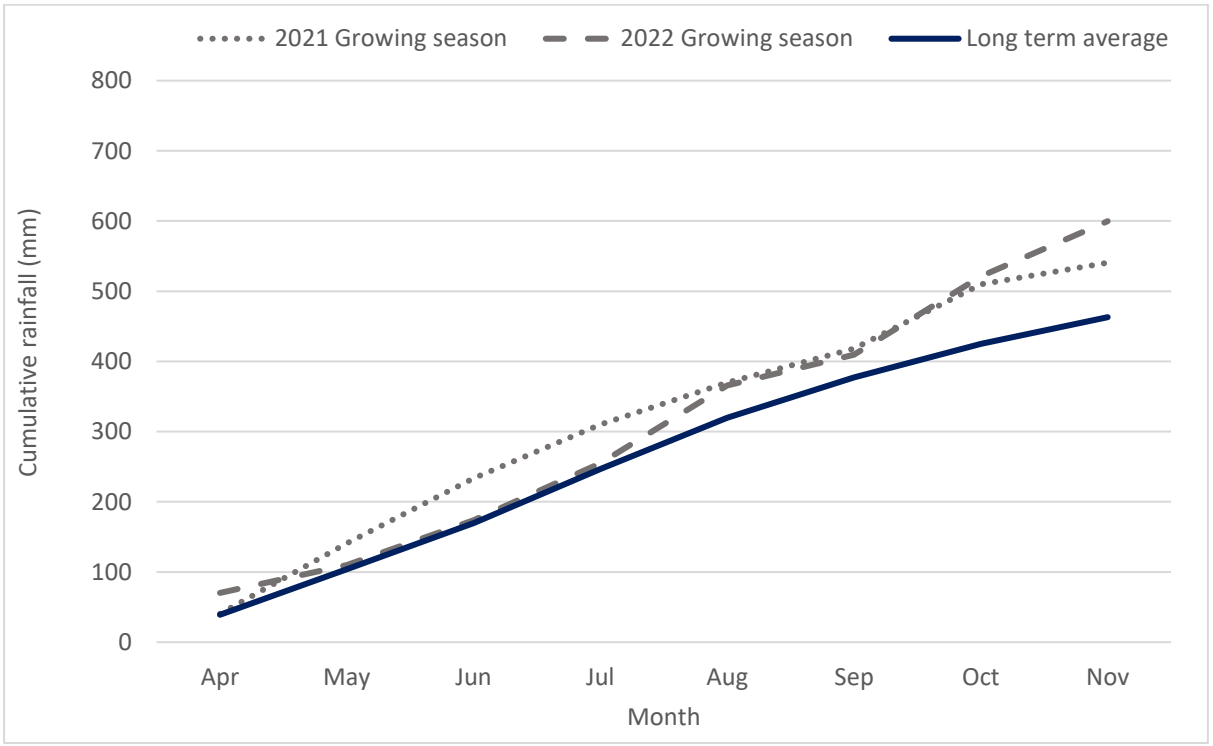

Figure 2. Cumulative growing season rainfall for 2021, 2022 and the long-term average for the growing season.