INDUSTRY INNOVATIONS 2025: HARVEST YIELD RESULTS – April Sown Barley

2025 VIC Crop Technology Centre (Gnarwarre)

Sown: 29 April 2025
Harvested: 12 December 2025
Rotation position: 2023 – Wheat; 2024 – Canola
Soil type & management: grey clay; Speed disced 1 pass (5-8cm depth) and Kelly chained

FAR trial code: B25-67-01
GSR (Apr-Nov): 371.6 mm

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

Objectives:

To assess the yield performance of a range of winter and spring barley, managed with and without fungicide against three regional controls (RGT Planet, Neo CL, & Minotaur), sown in late April in the southwest Victorian (Gnarwarre) high rainfall zone.

Key Points:

- *There was a significant interaction in grain yield between variety and fungicide application (P=0.005), with varieties differing in their response to fungicide application (ranging from minus 0.13 – 1.31t/ha)*
- *Neo CL outyielded all varieties when untreated and treated with fungicide except the longer season spring barley Ember (IGB21130), however the variety still gave a significant 0.59t/ha response to fungicide and yielded just short of 8t/ha.*
- *Treated with fungicide four other varieties exceeded 7t/ha, these were Fandaga, RAGT Asteroid, RP21011 and 6-row barley KWS Wallace.*
- *Varieties that produced negligible response to fungicide were the winter barleys KWS Tardis, 19034 and KWS 2-1958, however of these KWS Tardis was the highest yielding.*
- *The trial was infected with four diseases with net form net blotch and scald being the most significant, with leaf rust being significant in Minotaur as well as scald. Spot form of net blotch (SFNB) was present at very low levels.*
- *Grain quality was good except for protein that exceeded the malt barley criteria, probably as a result of late N uptake when rainfall fully mobilised fertiliser and soil reserves.*

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

	Management Level					
Variety	**Untreated**		**Plus fungicide**		**Mean**	
	Yield t/ha		**Yield t/ha**		**Yield t/ha**	
RGT Planet (s)	5.43	mn	6.37	g-l	5.90	ij
Neo CL (s)	7.33	bc	7.92	a	7.63	a
Minotaur (s)	6.10	l	6.84	d-h	6.47	efg
Gretchen (AGFBA021022) (s)	6.24	jkl	6.92	c-f	6.58	d-g
Fandaga (s)	6.64	e-k	7.28	bcd	6.96	b
AGFBA071025 (s)	5.24	mn	6.24	jkl	5.74	ijk
AGFBA071225 (s)	6.21	kl	6.92	c-f	6.56	d-g
AGT-Bunyip IA (AGTB0530) (s)	6.06	l	6.63	f-k	6.34	fg
RAGT Atlantis (s)	5.09	mn	6.09	l	5.59	jk
RAGT Asteroid (s)	6.27	jkl	7.07	c-f	6.67	b-f
RP19034 (s)	6.36	h-l	6.38	g-l	6.37	fg
RP21011 (s)	6.61	f-k	7.11	cde	6.86	bcd
Ember (IGB21130) (s)	7.03	c-f	7.70	ab	7.36	a
Firefoxx (s)	6.37	h-l	6.84	d-h	6.60	c-g
Laureate (s)	6.39	g-l	6.85	d-g	6.62	c-f
KWS Donau (w)	6.12	l	6.43	g-l	6.27	gh
KW 2-1918 (w)	4.99	n	6.30	i-l	5.64	ijk
KW 2-1958 (w)	5.55	m	5.55	m	5.55	k
KWS Tardis (w)	6.84	d-h	6.71	e-j	6.77	b-e
KWS Faro (w) (6r)	5.48	m	6.40	g-l	5.94	hi
KWS Wallace (w) (6r)	6.76	e-i	7.12	cde	6.94	bc
Mean	6.11	b	6.72	a		
LSD Cultivar p = 0.05	0.30			**P value**	0.007	
LSD Management p = 0.05	0.34			**P value**	<0.001	
LSD Cultivar x Man. p = 0.05	0.48			**P value**	0.005	

Note: w = Winter Barley, s = Spring Barley, 6r = six row

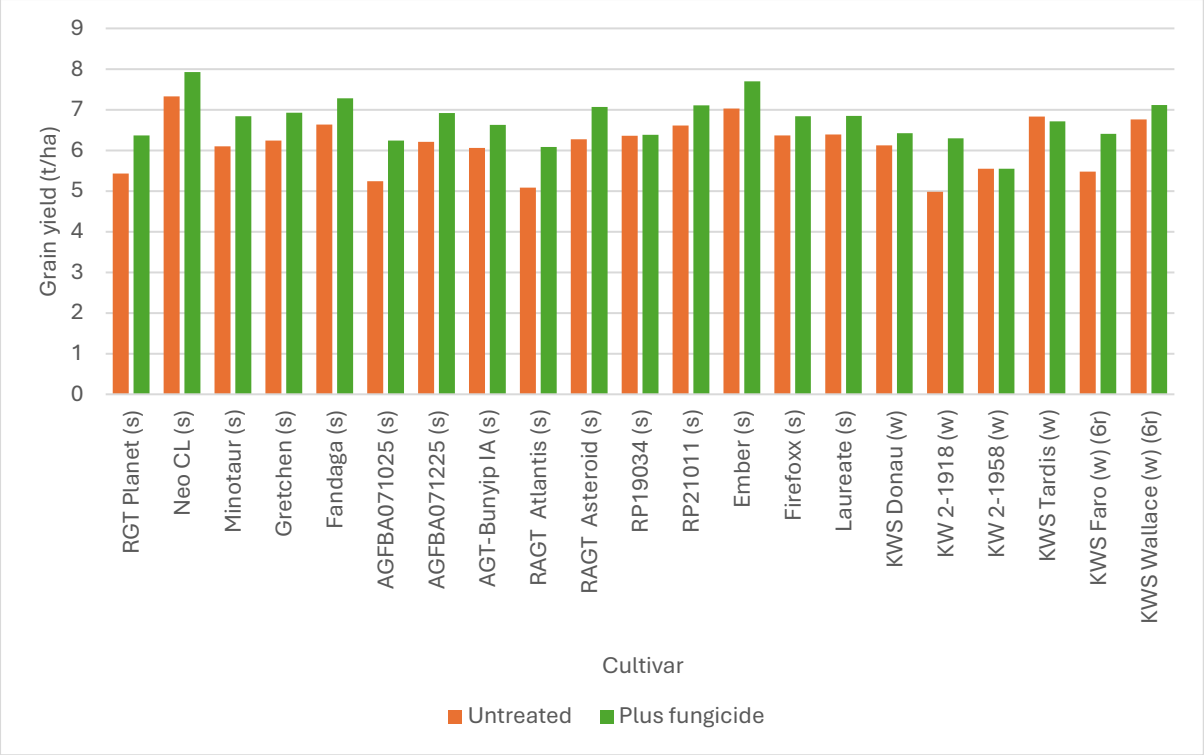

Figure 1. Influence of cultivar and fungicide application on grain yield (t/ha).

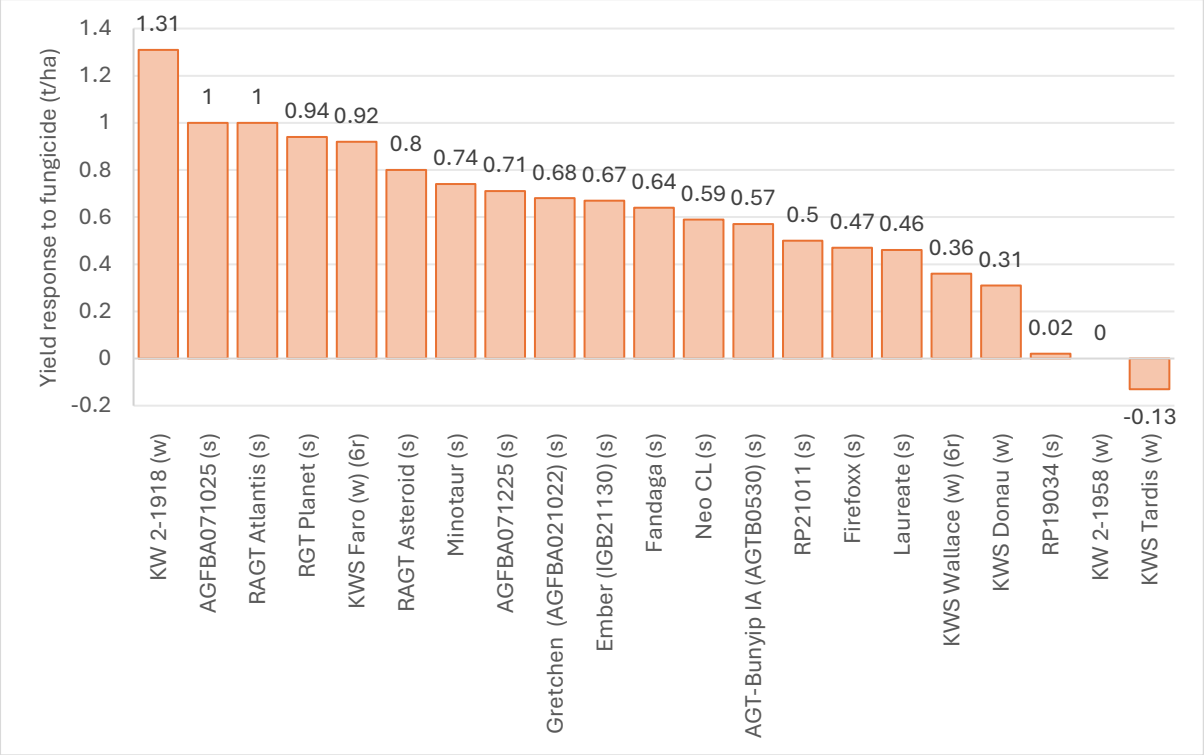

Figure 2. Influence of cultivar on fungicide yield response (t/ha) in order of most responsive to least responsive.

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

		Grain Quality Assessments							
Management		**Protein (%)**		**Test Weight (kg/hL)**		**Retention (%)**		**Screenings (%)**	
	Untreated	14.4	-	64.7	-	80.8	b	3.8	a
	Plus Fungicide	14.1	-	65.1	-	85.3	a	2.8	b
	Pval	0.108		0.348		0.003		0.007	
	LSD P=.05	n.s.		n.s.		1.6		0.5	
Cultivar		**Protein (%)**		**Test Weight (kg/hL)**		**Retention (%)**		**Screenings (%)**	
	RGT Planet (s)	13.4	l	63.3	fgh	74.2	h	5.7	ab
	Neo CL (s)	13.0	m	65.5	de	84.1	de	3.2	ef
	Minotaur (s)	14.9	b	65.6	de	85.0	cde	2.7	fg
	Gretchen (tested as AGFBA021022) (s)	14.2	e-h	61.7	i	83.9	de	3.5	def
	Fandaga (s)	14.1	ghi	62.7	h	79.8	g	3.7	de
	AGFBA071025 (s)	14.0	h-k	63.1	fgh	72.0	h	6.3	a
	AGFBA071225 (s)	14.1	gh	63.8	f	86.0	cd	3.1	ef
	AGT-Bunyip IA (tested as AGTB0530) (s)	13.9	h-k	68.1	a	87.1	c	2.6	fgh
	RAGT Atlantis (s)	14.0	hij	63.3	fgh	83.5	e	3.3	def
	RAGT Asteroid (s)	14.4	d-g	65.2	de	83.8	de	3.0	ef
	RP19034 (s)	14.2	e-h	65.1	e	83.6	e	3.3	def
	RP21011 (s)	13.7	kl	63.5	fg	84.5	de	3.2	def
	Ember (tested as IGB21130) (s)	13.8	ijk	65.4	de	90.7	b	1.7	i
	Firefoxx (s)	14.5	c-f	62.9	gh	84.7	de	3.4	def
	Laureate (s)	14.2	fgh	63.8	f	83.1	ef	3.7	de
	KWS Donau (w)	14.5	cde	67.2	b	93.6	a	1.7	hi
	KW 2-1918 (w)	14.8	bc	66.5	bc	80.8	fg	2.9	ef
	KW 2-1958 (w)	15.4	a	68.2	a	91.6	ab	1.8	ghi
	KWS Tardis (w)	14.5	c-f	68.6	a	90.3	b	1.6	i
	KWS Faro (w) (6r)	15.0	b	65.9	cd	80.1	g	3.0	ef
	KWS Wallace (w) (6r)	14.6	bcd	65.0	e	72.2	h	4.2	cd
	Pval	<0.001		<0.001		<0.001		<0.001	
	LSD P=.05	0.3		0.8		2.4		0.9	
Cultivar x Disease Management		**Protein (%)**		**Test Weight (kg/hL)**		**Retention (%)**		**Screenings (%)**	
	Untreated								
	RGT Planet (s)	13.6	-	62.9	-	68.1	s	7.3	a
	Neo CL (s)	13.3	-	65.0	-	81.4	mno	3.8	c-j
	Minotaur (s)	15.0	-	65.4	-	81.2	m-p	3.3	d-n
	Gretchen (tested as AGFBA021022) (s)	14.5	-	61.2	-	81.9	l-o	4.0	c-i
	Fandaga (s)	14.1	-	62.7	-	77.4	q	4.0	c-i
	AGFBA071025 (s)	14.3	-	62.7	-	66.2	s	7.8	a
	AGFBA071225 (s)	14.4	-	63.5	-	83.9	h-m	3.8	c-k
	AGT-Bunyip IA (tested as AGTB0530) (s)	14.2	-	67.8	-	85.3	g-k	2.9	f-q
	RAGT Atlantis (s)	14.2	-	63.2	-	78.0	pq	4.3	cde
	RAGT Asteroid (s)	14.5	-	64.8	-	80.9	m-p	3.6	c-l
	RP19034 (s)	14.2	-	65.2	-	82.5	j-n	3.7	c-k
	RP21011 (s)	13.7	-	63.4	-	82.8	i-n	3.6	c-l
	Ember (tested as IGB21130) (s)	14.0	-	65.3	-	89.8	cde	1.7	pqr
	Firefoxx (s)	14.7	-	63.1	-	83.9	h-m	3.5	c-m
	Laureate (s)	14.6	-	63.4	-	80.4	n-q	4.4	cd
	KWS Donau (w)	14.5	-	67.4	-	93.7	a	1.7	qr
	KW 2-1918 (w)	14.8	-	66.3	-	80.1	n-q	3.1	d-o
	KW 2-1958 (w)	15.4	-	68.0	-	91.2	a-d	1.9	o-r

	KWS Tardis (w)	14.9	-	68.6	-	90.3	bcd	1.7	qr
	KWS Faro (w) (6r)	14.9	-	65.8	-	79.8	n-q	3.2	d-n
	KWS Wallace (w) (6r)	14.5	-	65.2	-	72.6	r	4.1	c-g
	Plus Fungicide								
	RGT Planet (s)	13.3	-	63.7	-	80.3	n-q	4.1	c-g
	Neo CL (s)	12.8	-	66.0	-	86.7	e-h	2.6	j-r
	Minotaur (s)	14.9	-	65.8	-	88.9	c-f	2.1	n-r
	Gretchen (tested as AGFBA021022) (s)	14.0	-	62.2	-	86.0	f-i	3.0	e-p
	Fandaga (s)	14.1	-	62.7	-	82.2	k-o	3.3	d-n
	AGFBA071025 (s)	13.6	-	63.5	-	77.9	pq	4.7	bc
	AGFBA071225 (s)	13.9	-	64.1	-	88.1	d-g	2.5	k-r
	AGT-Bunyip IA (tested as AGTB0530) (s)	13.6	-	68.3	-	88.9	c-f	2.3	l-r
	RAGT Atlantis (s)	13.8	-	63.5	-	89.0	c-f	2.2	m-r
	RAGT Asteroid (s)	14.3	-	65.6	-	86.7	e-h	2.4	l-r
	RP19034 (s)	14.3	-	65.0	-	84.8	g-l	2.8	g-r
	RP21011 (s)	13.6	-	63.7	-	86.3	fgh	2.9	g-r
	Ember (tested as IGB21130) (s)	13.7	-	65.5	-	91.6	abc	1.6	r
	Firefoxx (s)	14.3	-	62.8	-	85.4	g-k	3.3	d-n
	Laureate (s)	13.8	-	64.3	-	85.8	f-j	3.1	d-o
	KWS Donau (w)	14.6	-	67.0	-	93.5	ab	1.7	pqr
	KW 2-1918 (w)	14.7	-	66.8	-	81.6	l-o	2.7	i-r
	KW 2-1958 (w)	15.5	-	68.5	-	91.9	abc	1.7	qr
	KWS Tardis (w)	14.1	-	68.6	-	90.4	a-d	1.6	r
	KWS Faro (w) (6r)	15.0	-	66.0	-	80.3	n-q	2.8	h-r
	KWS Wallace (w) (6r)	14.8	-	64.9	-	71.9	r	4.2	c-f
	Pval	0.069		0.933		<0.001		0.016	
	LSD P=.05	n.s.		n.s.		3.3		1.3	

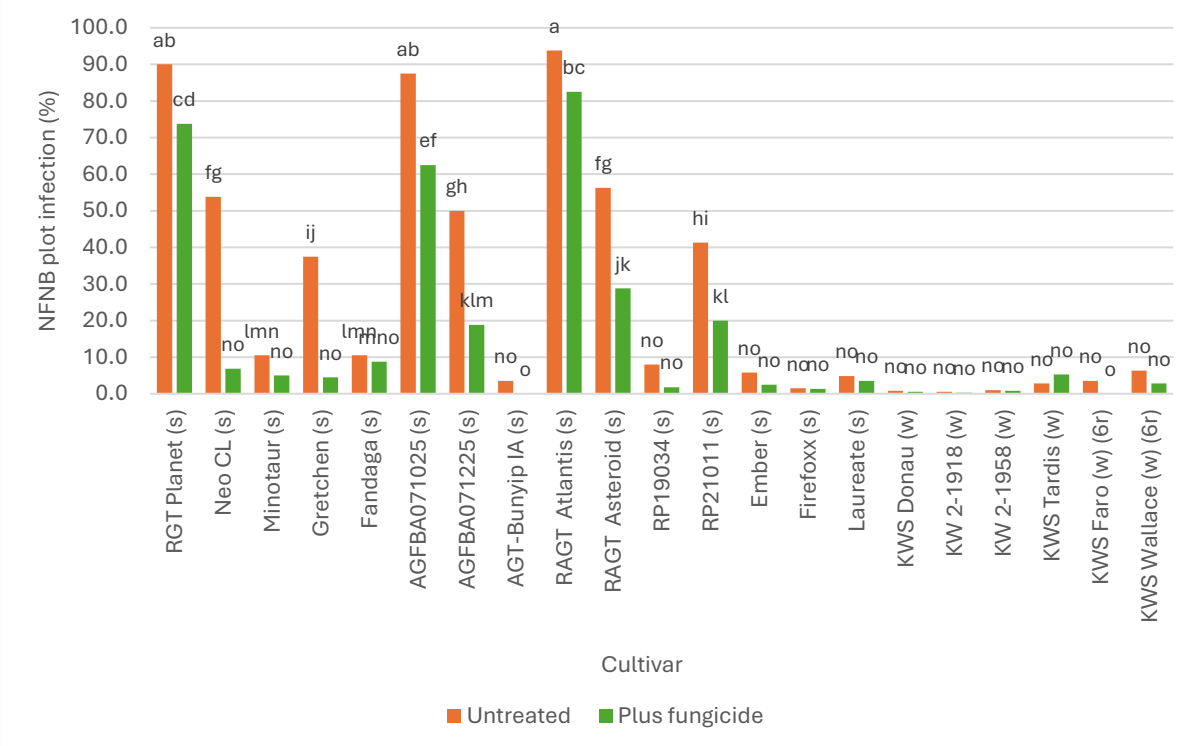

Figure 3. Influence of cultivar and fungicide application (2 spray programme) on **net form net blotch (NFNB)** plot infection (P-Value < 0.001, LSD = 10.3), assessed on 16 October 2025.

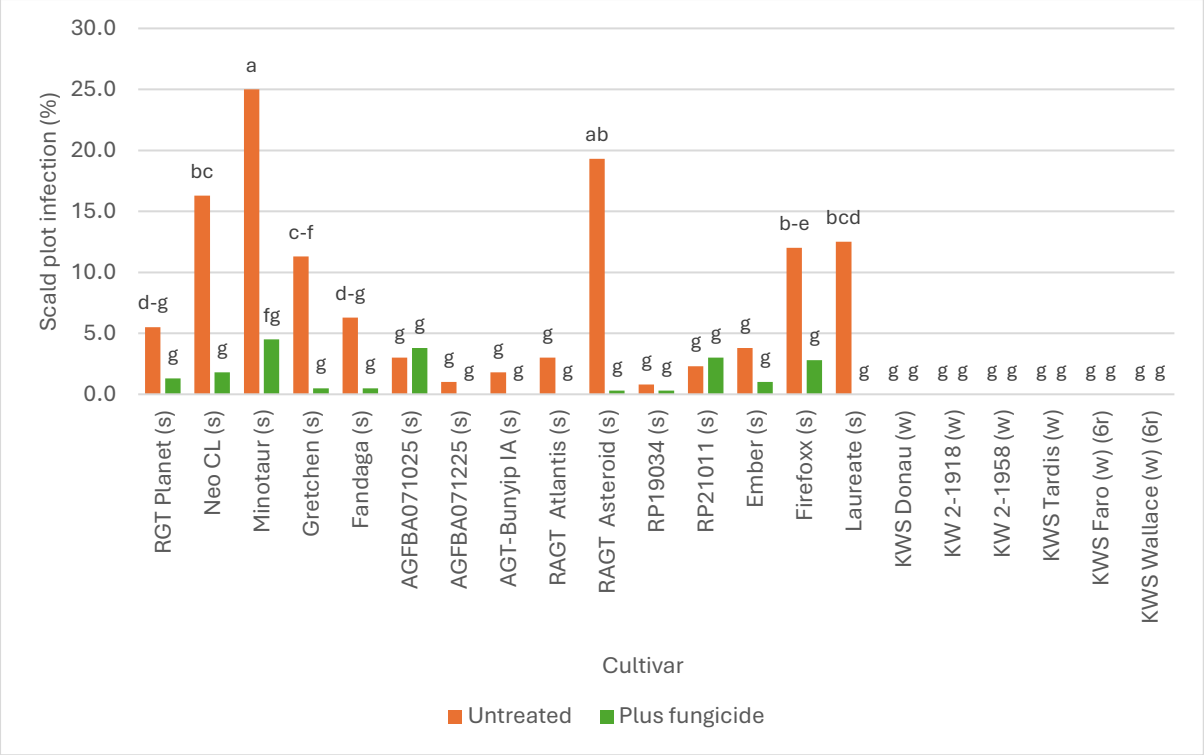

Figure 4. Influence of variety and fungicide application (2 spray programme) on **scald** plot infection (P-Value < 0.001, LSD = 7.4), assessed on 16 October 2025.

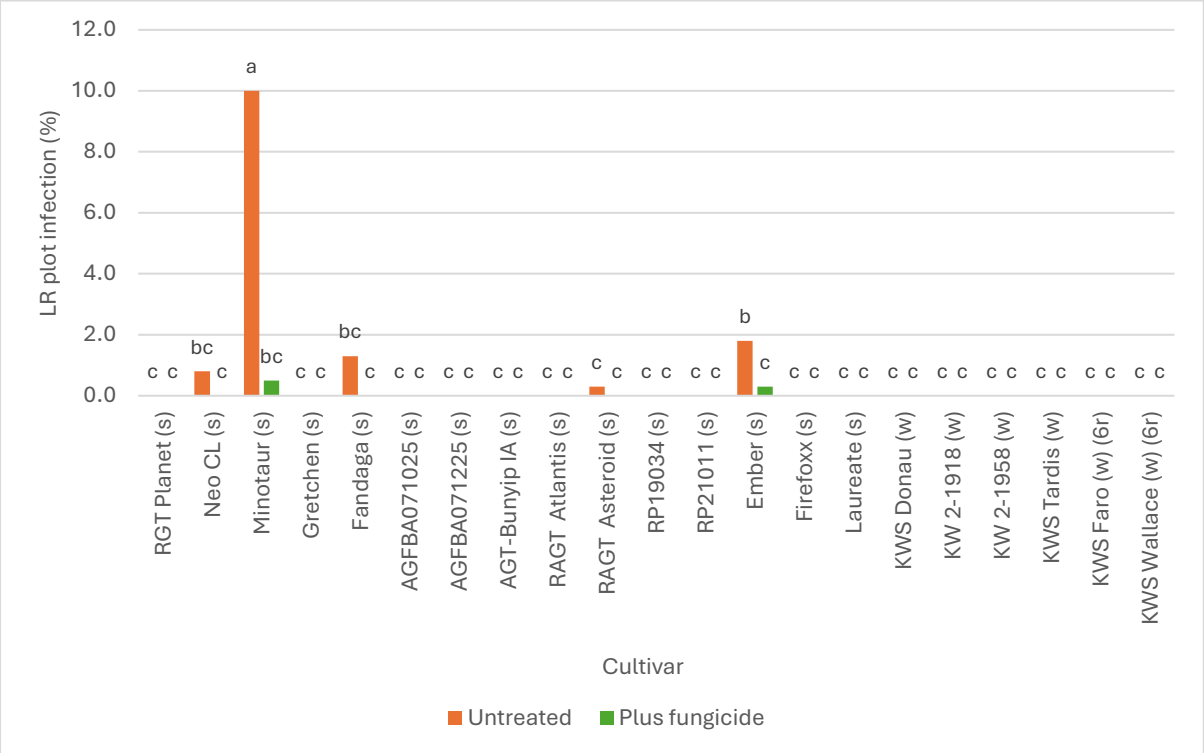

Figure 5. Influence of variety and fungicide application (2 spray programme) on **leaf rust (LR)** plot infection (P-Value < 0.001, LSD = 1.4), assessed on 16 October 2025.

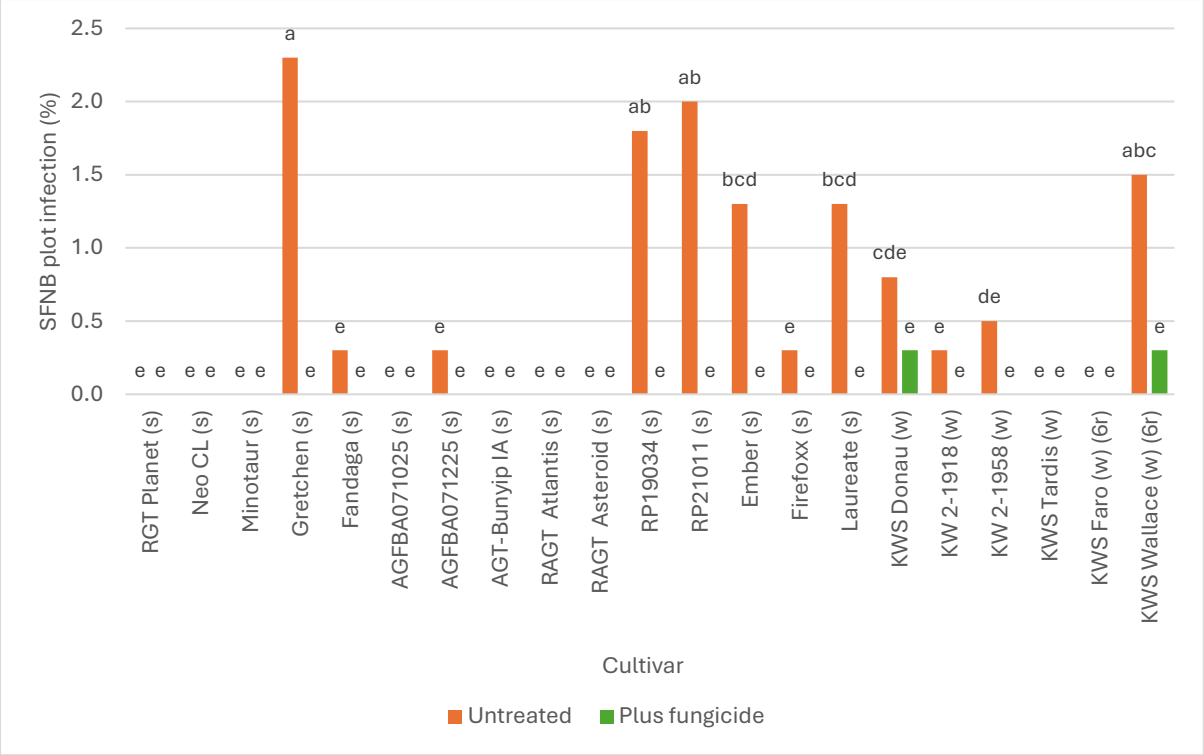

Figure 6. Influence of variety and fungicide application (2 spray programme) on **spot form net blotch (SFNB)** plot infection (P-Value < 0.001, LSD = 1.4), assessed on 16 October 2025.

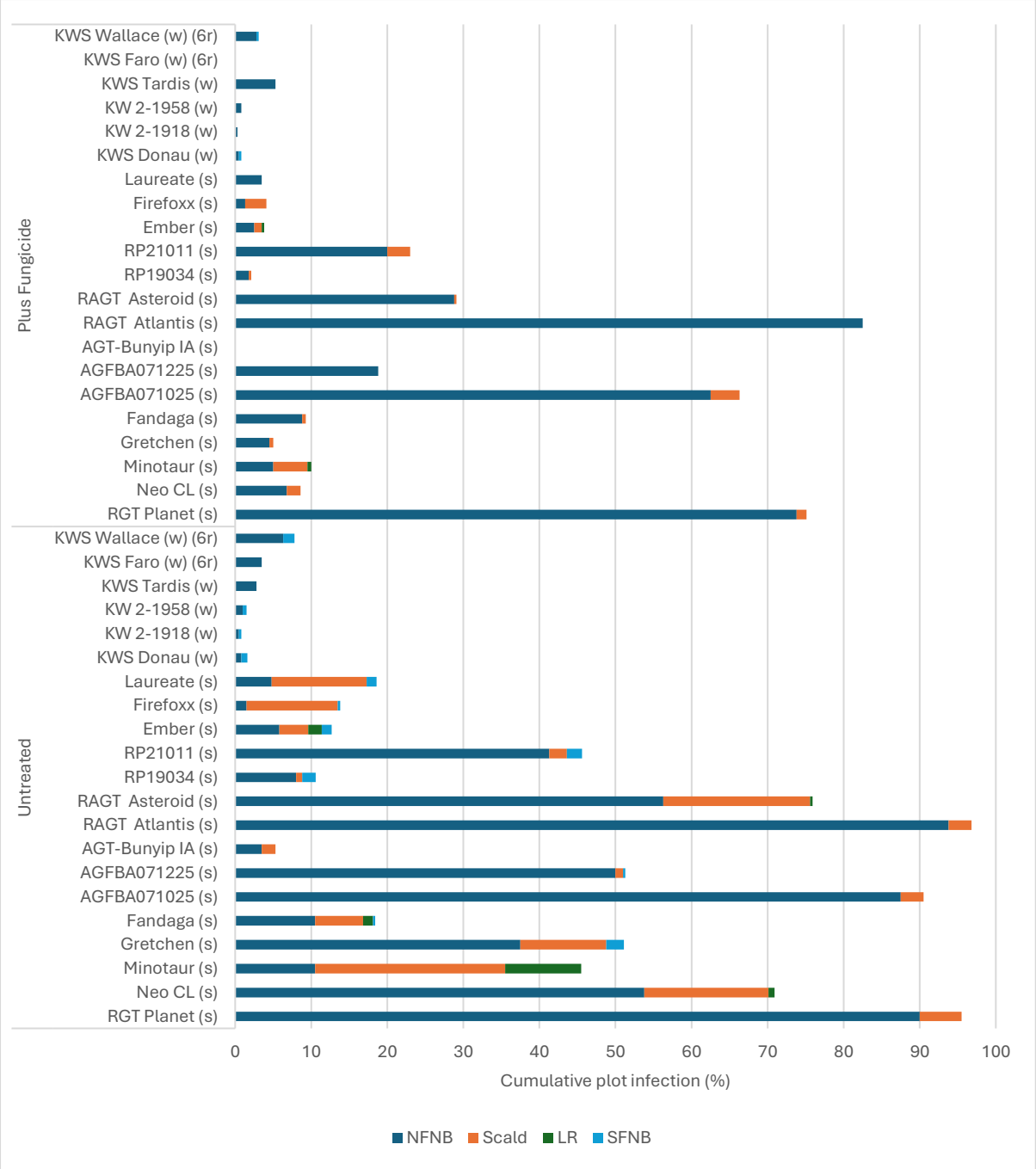

Figure 7. Cumulative plot % infection (assessed 16 October 2025).

Table 3. Trial input and management details.

Sowing date:		**29 April 2025**	
Harvest date:		**12 December 2025**	
Seed rate:		200 seeds/m^2	
Basal fertiliser:	29 April	100 kg MAP	
Pre-em herbicide:	28 April	Treflan 1.5 L/ha	
		Overwatch 1.25 L/ha	
Post-em herbicide:	18 July	Paradigm 25 g/ha	
		LV MCPA 570 0.5 L/ha	
		CanDo adjuvant 0.5 L/ha	
Nitrogen:	16 July	Urea 108 kg/ha (50 kg N/ha)	
	22 Aug	Urea 217 kg/ha (100 kg N/ha)	
Fungicide:		**Untreated**	**Plus fungicide**
	GS31	----	Prosaro 0.3 L/ha
	GS39	----	Aviator Xpro 0.5 L/ha

Meteorological Data

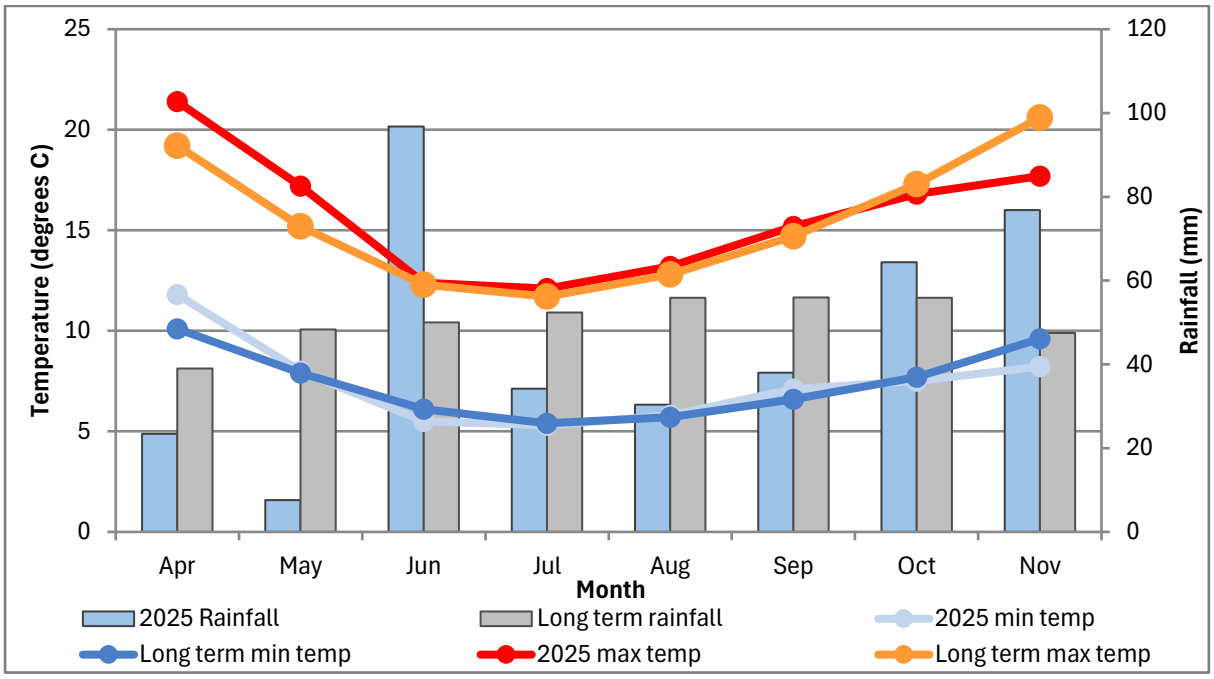

Figure 8. 2025 growing season rainfall recorded on site and long-term rainfall recorded at Winchelsea (Post Office) (1898 to 2025). 2025 and long-term minimum and maximum temperatures recorded at Colac (Mount Gellibrand) (2000 to 2025) for the growing season (April to November). *Rainfall April to November = 371.6 mm*.

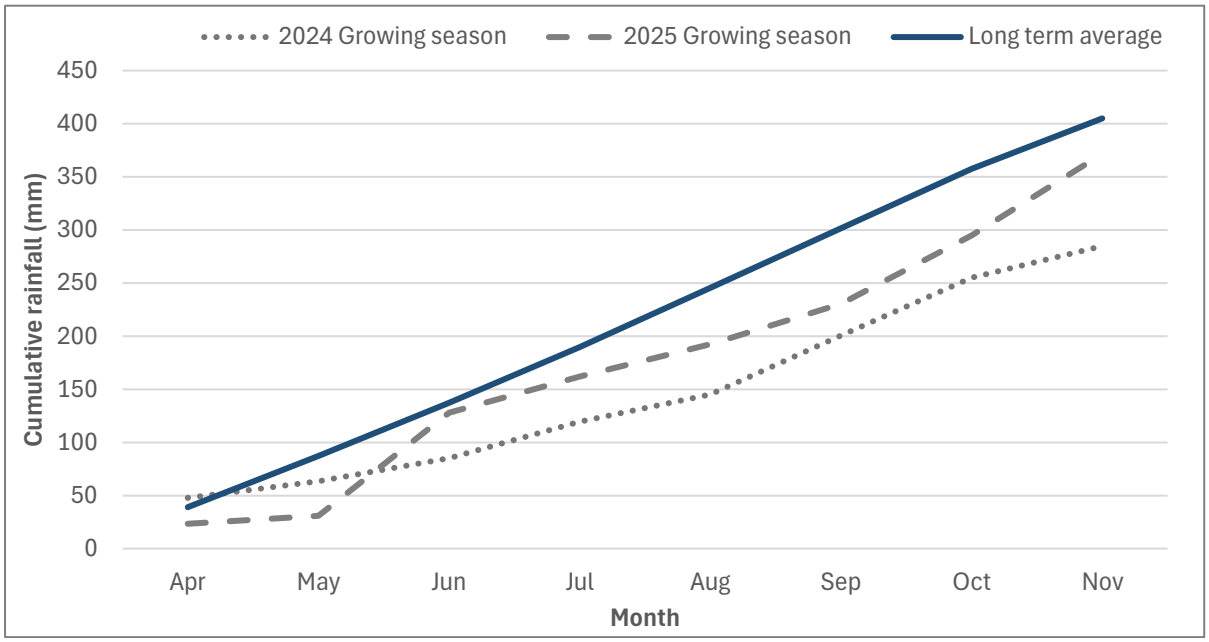

Figure 9. Cumulative growing season rainfall for 2024, 2025 and the long-term average for the growing season (April-November).

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