INDUSTRY INNOVATIONS 2025: HARVEST YIELD RESULTS – MAY SOWN BARLEY

2025 VIC Crop Technology Centre (Gnarwarre)

Sown: 21 May 2025
Harvested: 15 December 2025
Soil type & management: Grey clay; Speed disced 1 pass (5-8cm depth) and Kelly chained, stubble incorporated

Previous Crop(s): 2023 - Wheat; 2024 - Canola
FAR Code: FAR VIC II B25-68-02
GSR (Apr-Nov): 371.6mm

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 spring barley cultivars, managed with and without fungicide against four regional controls (RGT Planet, Neo CL, Rosalind & Minotaur), sown in late May in the southwest Victorian (Gnarwarre) high rainfall zone.

Key Points:

- *There was no significant interaction between cultivar and fungicide with an average response to fungicide of 0.45t/ha across the spring varieties tested at this later sowing date.*
- *Although not as severe as in the April sowing high NFNB infection and scald were again the principal diseases affecting the trial and resultant yields and grain quality except for protein %.*
- *Averaged over treated and untreated Neo CL was significantly higher yielding (8.55t/ha) than all other cultivars except the coded line AGFBA061025 cultivar (8.46t/ha), Neo CL being almost 1 t/ha higher yielding than in the adjoining barley GEN trial sown 1 month earlier.*
- *NFNB was the dominant disease within the trial with untreated RAGT Atlantis (87.5% infection) and RGT Planet (76.3% infection), the worst affected varieties and AGFBA061025 (28.8%), Minotaur (22.5%), Neo CL (19.5%) and RGT Planet (18.8%) the most affected by scald.*
- *It is noticeable that the two spray fungicide programme has been more effective at controlling scald in the susceptible varieties than controlling NFNB in susceptible, a result most likely associated with the presence of resistant NFNB biotypes in this region.*
- *Low levels of leaf rust affected untreated Soldier CL (2.8%) and Minotaur (2.6%) with low levels of Barley Powdery Mildew (BPM) affecting untreated AGT-Bunyip IA (4.5%).*
- *Retention % and screening % were not limiting factor for any cultivar for bin grade, although higher proteins % were a limiting factor for Minotaur to be classified as "Malting Barley".*
- *Neo CL fungicide treated with 11.7% protein was classified as "Malting Barley- NE1"*
- *RGT Planet fungicide treated was classified as "Malting Barley- PL1" but lower test weights when untreated dropped its grade to feed grade BAR 1.*

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

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

		Yield t/ha		
	Variety	**Untreated**	**Plus fungicide**	**Mean**
1.	**RGT Planet**	6.44 -	7.12 -	**6.78 g**
2.	**Neo CL**	8.24 -	8.87 -	**8.55 a**
3.	**Minotaur**	7.80 -	7.94 -	**7.87 d**
4.	**Rosalind**	7.78 -	8.08 -	**7.93 d**
5.	**Gretchen (AGFBA021022)**	7.88 -	8.26 -	**8.07 cd**
6.	**AGFBA061025**	8.23 -	8.70 -	**8.46 ab**
7.	**AGFBA071025**	7.32 -	7.68 -	**7.50 e**
8.	**AGFBA071225**	8.06 -	8.42 -	**8.24 bc**
9.	**AGT-Bunyip IA (AGTB0530)**	6.47 -	7.08 -	**6.77 g**
10.	**RAGT Atlantis**	6.90 -	7.51 -	**7.21 f**
11.	**RAGT Asteroid**	7.80 -	8.24 -	**8.02 cd**
12.	**RP19034**	7.81 -	8.23 -	**8.02 cd**
13.	**RP21011**	7.96 -	8.28 -	**8.12 cd**
14.	**Soldier CL (IGB22117)**	7.80 -	8.42 -	**8.11 cd**
	Mean	**7.61 b**	**8.06 a**	**7.83**
	LSD Cultivar p = 0.05	0.27	**P value**	<0.001
	LSD Management p = 0.05	0.33	**P value**	0.021
	LSD Cultivar x Man. p = 0.05	0.38	**P value**	0.785

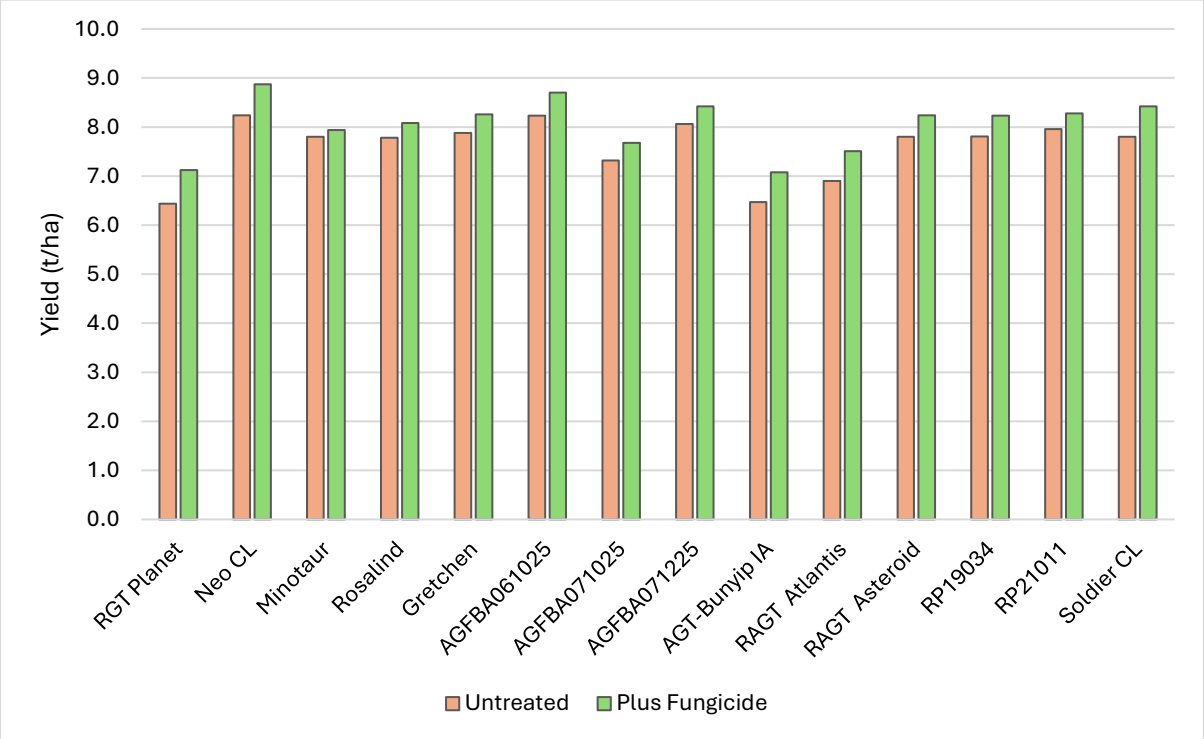

Figure 1. Influence of cultivar and fungicide application on **grain yield (t/ha)** (P-Value=0.785, LSD = 0.38).

Table 2. Influence of fungicide application on the grain protein % of barley cultivars plus and minus fungicide.

Protein %					
	Variety	**Untreated**		**Plus fungicide**	**Mean**
1.	**RGT Planet**	12.2	ijk	12.0 kl	**12.1 fg**
2.	**Neo CL**	12.2	ijk	11.7 l	**11.9 g**
3.	**Minotaur**	13.6	a	13.5 a	**13.6 a**
4.	**Rosalind**	12.8	bc	12.3 g-k	**12.5 de**
5.	**Gretchen (AGFBA021022)**	12.8	bcd	12.2 h-k	**12.5 e**
6.	**AGFBA061025**	12.2	h-k	12.1 jk	**12.1 fg**
7.	**AGFBA071025**	12.3	f-k	12.1 ijk	**12.2 f**
8.	**AGFBA071225**	12.9	b	12.4 e-j	**12.6 cde**
9.	**AGT-Bunyip IA (AGTB0530)**	13.3	a	12.7 b-e	**13.0 b**
10.	**RAGT Atlantis**	12.6	b-f	12.6 c-g	**12.6 de**
11.	**RAGT Asteroid**	12.8	bc	12.9 b	**12.9 bc**
12.	**RP19034**	12.9	b	12.6 c-g	**12.7 cd**
13.	**RP21011**	12.2	h-k	12.3 g-k	**12.2 f**
14.	**Soldier CL (IGB22117)**	12.5	c-h	12.4 d-i	**12.5 e**
	Mean	**12.7**	**-**	**12.4 -**	**12.5**
	LSD Cultivar p = 0.05	0.2		**P value**	<0.001
	LSD Management p = 0.05	0.5		**P value**	0.189
	LSD Cultivar x Man. p = 0.05	0.3		**P value**	0.028

Table 3. Influence of fungicide application on the test weight Kg/hL of barley cultivars plus and minus fungicide.

Test Weight (Kg/hL)					
	Variety	**Untreated**		**Plus fungicide**	**Mean**
1.	**RGT Planet**	64.9	-	66.5 -	**65.7 g**
2.	**Neo CL**	68.3	-	70.1 -	**69.2 b**
3.	**Minotaur**	68.7	-	69.2 -	**69.0 bc**
4.	**Rosalind**	67.9	-	69.0 -	**68.5 cd**
5.	**Gretchen (AGFBA021022)**	65.4	-	66.1 -	**65.7 g**
6.	**AGFBA061025**	65.7	-	66.6 -	**66.2 fg**
7.	**AGFBA071025**	65.4	-	66.6 -	**66.0 g**
8.	**AGFBA071225**	65.5	-	67.8 -	**66.6 f**
9.	**AGT-Bunyip IA (AGTB0530)**	69.6	-	70.4 -	**70.0 a**
10.	**RAGT Atlantis**	64.9	-	66.4 -	**65.6 g**
11.	**RAGT Asteroid**	67.3	-	68.4 -	**67.9 e**
12.	**RP19034**	68.0	-	69.0 -	**68.5 cd**
13.	**RP21011**	66.1	-	67.3 -	**66.7 f**
14.	**Soldier CL (IGB22117)**	67.9	-	68.1 -	**68.0 de**
	Mean	**66.8**	**b**	**67.9 a**	**67.4**
	LSD Cultivar p = 0.05	0.6		**P value**	<0.001
	LSD Management p = 0.05	0.2		**P value**	<0.001
	LSD Cultivar x Man. p = 0.05	0.8		**P value**	0.100

Table 4. Influence of fungicide application on the retention % of barley cultivars plus and minus fungicide.

Retention (%)				
	Variety	**Untreated**	**Plus fungicide**	**Mean**
1.	**RGT Planet**	80.7 -	85.8 -	**83.2 f**
2.	**Neo CL**	86.4 -	96.4 -	**91.4 cd**
3.	**Minotaur**	96.4 -	97.3 -	**96.8 a**
4.	**Rosalind**	94.1 -	95.4 -	**94.7 ab**
5.	**Gretchen (AGFBA021022)**	93.1 -	94.2 -	**93.7 abc**
6.	**AGFBA061025**	91.7 -	95.8 -	**93.7 abc**
7.	**AGFBA071025**	84.6 -	87.7 -	**86.2 ef**
8.	**AGFBA071225**	92.0 -	95.0 -	**93.5 bc**
9.	**AGT-Bunyip IA (AGTB0530)**	94.4 -	96.3 -	**95.4 ab**
10.	**RAGT Atlantis**	86.4 -	91.1 -	**88.7 de**
11.	**RAGT Asteroid**	91.4 -	93.3 -	**92.4 bc**
12.	**RP19034**	93.9 -	95.3 -	**94.6 abc**
13.	**RP21011**	91.9 -	93.7 -	**92.8 bc**
14.	**Soldier CL (IGB22117)**	93.6 -	95.9 -	**94.7 ab**
	Mean	**90.8 b**	**93.8 a**	**92.3**
	LSD Cultivar p = 0.05	3.3	**P value**	<0.001
	LSD Management p = 0.05	2.8	**P value**	0.042
	LSD Cultivar x Man. p = 0.05	4.7	**P value**	0.413

Table 5. Influence of fungicide application on the screenings % of barley cultivars plus and minus fungicide.

Screenings (%)				
	Variety	**Untreated**	**Plus fungicide**	**Mean**
1.	**RGT Planet**	3.7 -	2.7 -	**3.2 a**
2.	**Neo CL**	1.6 -	0.9 -	**1.2 fgh**
3.	**Minotaur**	0.9 -	0.8 -	**0.8 i**
4.	**Rosalind**	1.1 -	0.9 -	**1.0 hi**
5.	**Gretchen (AGFBA021022)**	1.4 -	1.4 -	**1.4 d-g**
6.	**AGFBA061025**	1.9 -	1.3 -	**1.6 de**
7.	**AGFBA071025**	3.0 -	2.3 -	**2.7 b**
8.	**AGFBA071225**	1.8 -	1.2 -	**1.5 def**
9.	**AGT-Bunyip IA (AGTB0530)**	1.5 -	1.0 -	**1.3 e-h**
10.	**RAGT Atlantis**	2.7 -	1.9 -	**2.3 c**
11.	**RAGT Asteroid**	1.7 -	1.4 -	**1.5 def**
12.	**RP19034**	1.8 -	1.6 -	**1.7 d**
13.	**RP21011**	1.7 -	1.4 -	**1.5 def**
14.	**Soldier CL (IGB22117)**	1.2 -	1.1 -	**1.1 ghi**
	Mean	**1.8 a**	**1.4 b**	**1.6**
	LSD Cultivar p = 0.05	0.3	**P value**	<0.001
	LSD Management p = 0.05	0.3	**P value**	0.016
	LSD Cultivar x Man. p = 0.05	0.5	**P value**	0.080

Disease assessment data

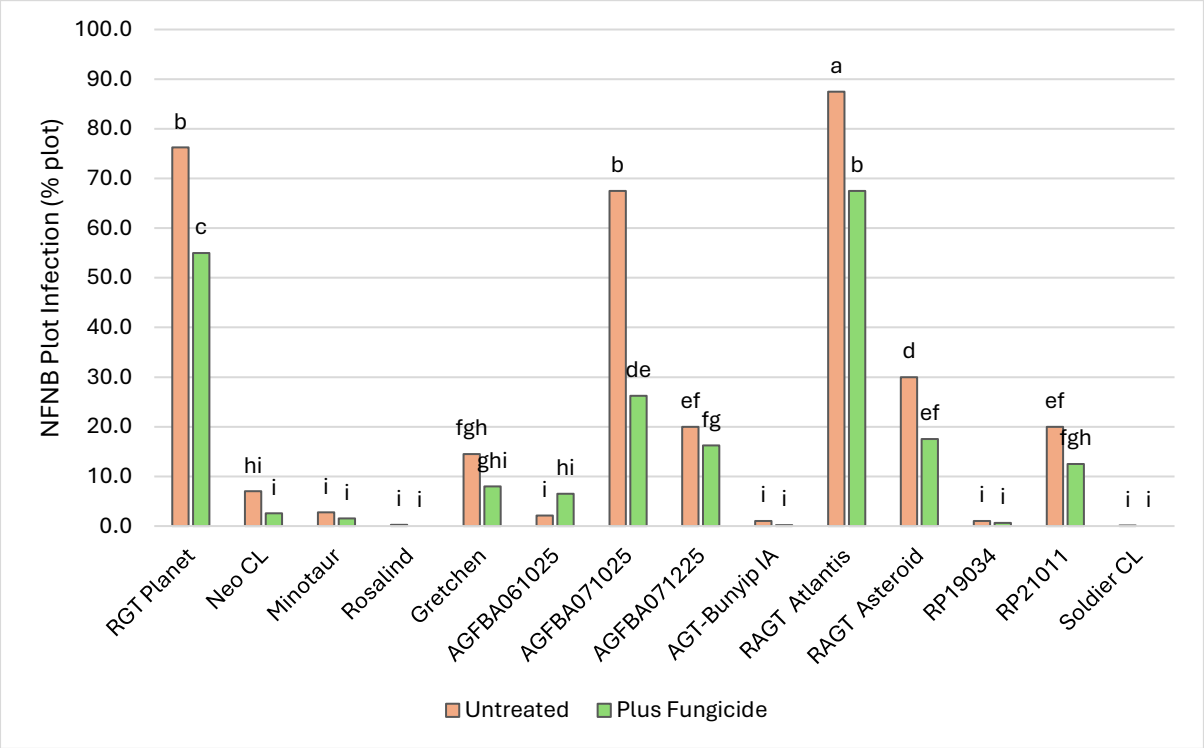

Figure 2. Influence of cultivar and fungicide application (2 spray programme) on **net form net blotch (NFNB)** plot infection (P-Value < 0.001, LSD = 8.8), assessed on 4 November 2025.

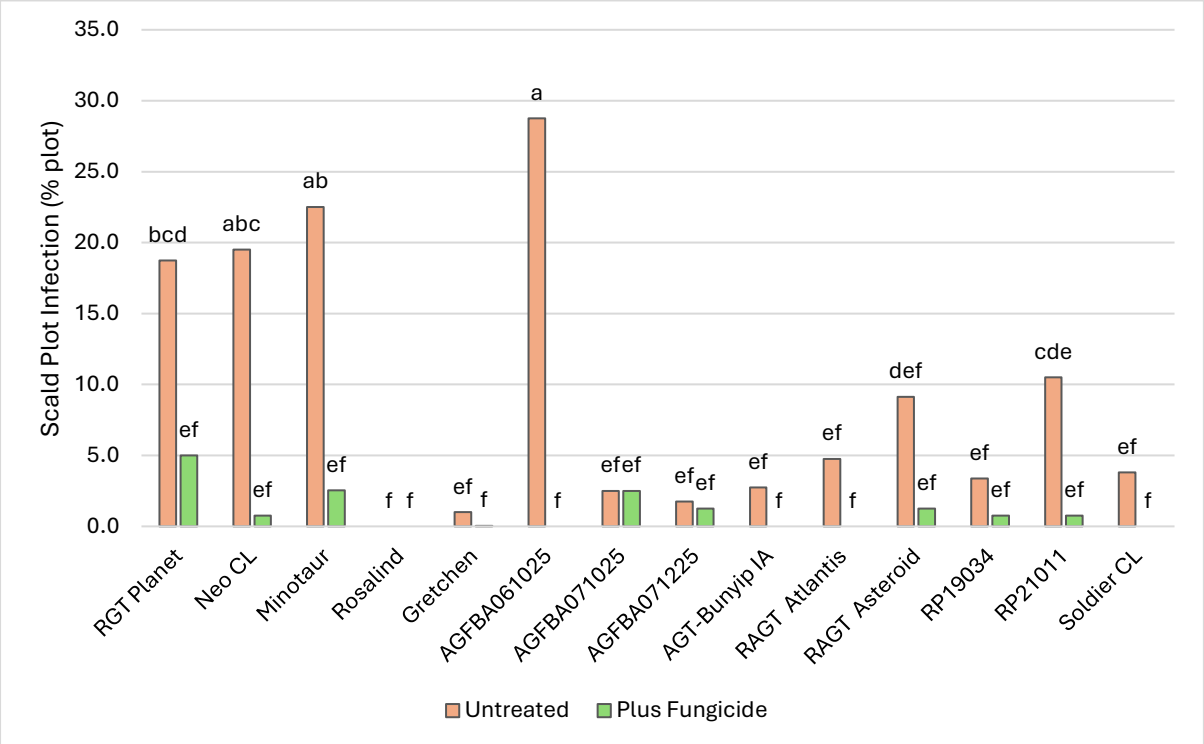

Figure 3. Influence of variety and fungicide application (2 spray programme) on **scald** plot infection (P-Value < 0.001, LSD = 9.8), assessed on 4 November 2025.

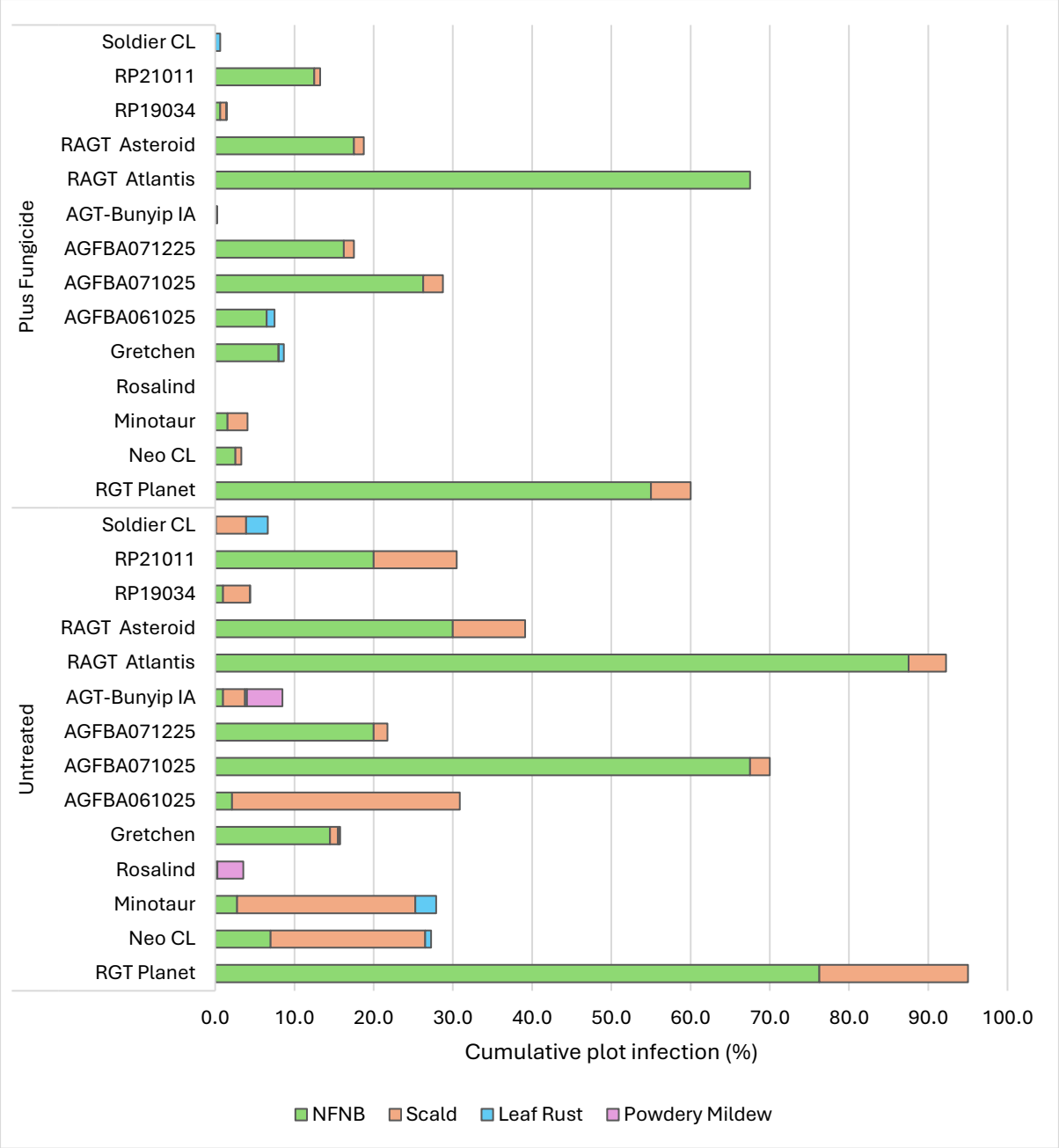

Figure 4. Cumulative plot % infection (assessed 4 November 2025).

Trial Inputs

Table 6. Trial input and management details.

Sowing date:		**21 May 2025**	
Harvest date:		**15 December 2025**	
Seed rate:		200 seeds/m^2	
Seed treatment:	RGT Planet- Imidacloprid (1.2L/t), Rancona Dimension (0.8L/t) Neo CL- Evergol Energy (1.3L/t), Cruiser 350FS (1.0L/t) All other cultivars- Vibrance (3.6L/t), Gaucho (2.4L/t)		
Basal fertiliser:	21 May	100 kg MAP	
Pre-em herbicide:	19 May	Mateno Complete 0.75 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

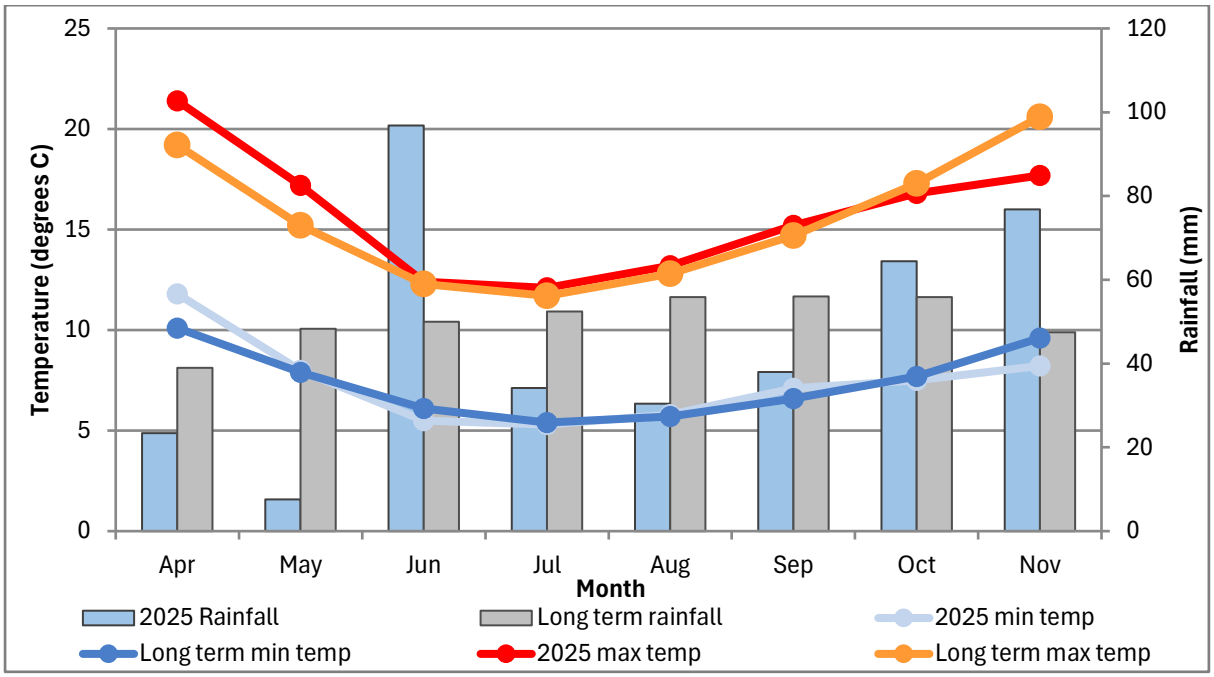

Figure 7. 2025 growing season rainfall recorded on site and long-term rainfall recorded at Winchelsea (Post Office) (1898 to 2025). 2025 and long-term minimum and maximum temperatures recorded at Colac (Mount Gellibrand) (2000 to 2025) for the growing season (April to November). *Rainfall April to November = 371.6 mm*.

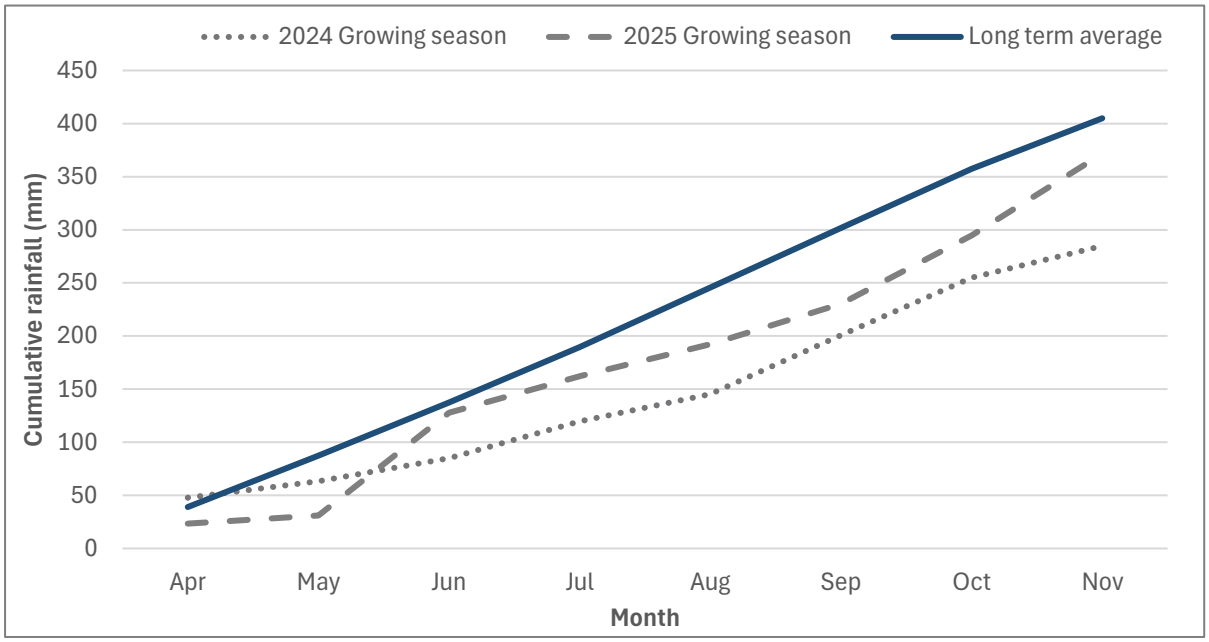

Figure 8. Cumulative growing season rainfall for 2024, 2025 and the long-term average for the growing season (April-November).

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