



Industry Innovations 2025

INDUSTRY INNOVATIONS: PROVISIONAL HARVEST YIELD RESULTS – April Sown Wheat 2024 VIC Crop Technology Centre (Gnarwarre)

Sown: 25 April 2024

Harvested: 16 December 2024

Rotation position: 2022- Wheat; 2023- Canola

Soil type & management: Grey clay; speed disced 1 pass (5-8cm depth) and Kelly chained

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 wheats, managed with and without fungicide against four regional controls (BigRed, RGT Cesario, RGT Accroc & Illabo), sown in late April in the Gnarwarre (VIC) HRZ environment.

Key Points:

- *With very dry conditions in May and June following establishment and grain fill punctuated with only one large rainfall event crops were frequently drought stressed in 2024.*
- *Four winter red feed wheats produced the highest yields under these dry conditions, these were RGT Accroc, which unusually had no stripe rust in the 2024 trial, Big Red, Triple 2 and AGFWHWW2 (formerly FAR WW2).*
- *There was a significant yield interaction (<0.001) between variety and fungicide application, with the badly stripe rust affected varieties (Mammoth, TA0109 & RGT Cesario giving significant yield increases to fungicide.*
- *Varieties which had lower levels of stripe rust infection (5-15% infection in the untreated) Brighton (V14051-172) and Avoca (L12049-044) gave no response to fungicide, indicating that even in untreated scenarios there was sufficient green leaf for soil water available.*
- *Mammoth, a slow spring wheat (APW) when fungicide protected significantly outyielded, Brighton winter wheat (AH) and Avoca spring wheat (AH) and Stockade (APW).*
- *Stockade (APW) despite little Septoria tritici blotch infection (STB) and no stripe rust in 2024 was inferior to Brighton (AH).*

Issue date 3rd January 2025

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

Variety	Management Level		
	Untreated	Plus fungicide	Mean
	Yield t/ha	Yield t/ha	Yield t/ha
BigRed (<i>w</i>)	4.89 a	4.83 a	4.86 a
RGT Cesario (<i>w</i>)	3.81 fgh	4.78 a	4.30 c
RGT Accroc (<i>w</i>)	4.96 a	4.84 a	4.90 a
Illabo (<i>w</i>)	3.17 j	3.27 j	3.22 g
TA0109 (<i>w</i>)	3.32 ij	3.88 e-h	3.60 f
Avoca (L12049-044) (<i>s</i>)	3.82 fgh	4.15 d-g	3.99 de
Brighton (V14051-172) (<i>w</i>)	4.21 c-f	4.26 b-e	4.23 cd
Mammoth (IGW6755) (<i>s</i>)	3.78 gh	4.86 a	4.32 c
Stockade (<i>s</i>)	3.68 hi	3.83 fgh	3.76 ef
Triple 2 (AGFWH010222) (<i>w</i>)	4.62 ab	4.86 a	4.74 ab
AGFWHWW2 (FAR WW2) (<i>w</i>)	4.78 a	4.80 a	4.79 a
Longford (<i>w</i>)	4.32 bcd	4.62 abc	4.47 bc
Mean	4.11 b	4.41 a	
LSD Cultivar p = 0.05	0.29	P value	<0.001
LSD Management p = 0.05	0.13	P value	0.005
LSD Cultivar x Man. p = 0.05	0.41	P value	<0.001

Note: *w* = Winter Wheat, *s* = Spring Wheat

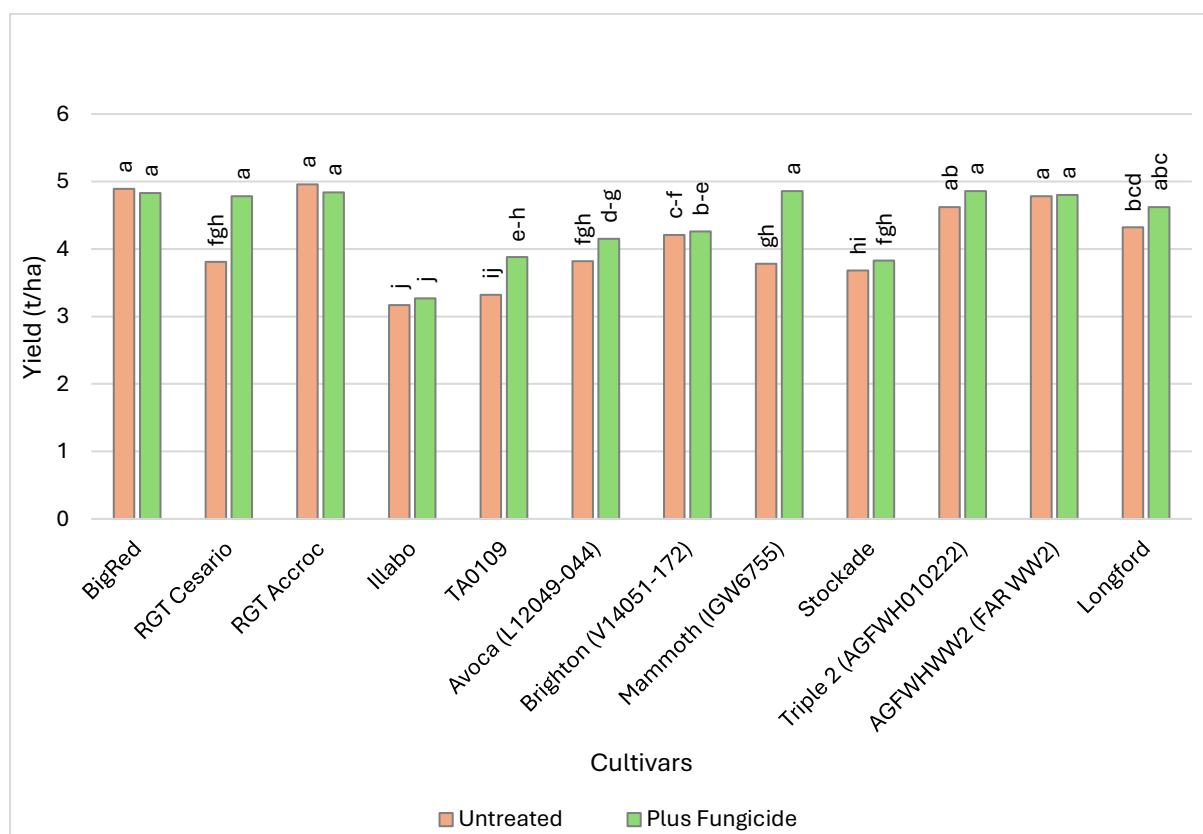


Figure 1. Influence of variety and fungicide application on grain yield (t/ha).

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

Grain quality assessments				
Variety		Protein (%)	Test Weight (kg/hL)	Screenings (%)
1.	BigRed	11.3 e	79.1 ab	2.5 c
2.	RGT Cesario	11.9 cd	77.7 cd	2.6 c
3.	RGT Accroc	11.9 cd	77.8 cd	1.4 d
4.	Illabo	14.0 a	76.0 f	1.6 d
5.	TA0109	12.5 b	75.0 g	3.9 a
6.	Avoca (L12049-044)	11.9 c	77.6 de	2.5 c
7.	Brighton (V14051-172)	12.5 b	78.9 b	1.8 d
8.	Mammoth (IGW6755)	11.5 de	77.9 cd	2.5 c
9.	Stockade	12.1 c	79.4 a	2.8 bc
10.	Triple 2 (AGFWH010222)	11.5 de	78.1 c	3.2 b
11.	AGFWHWW2 (FAR WW2)	11.5 e	77.3 e	1.9 d
12.	Longford	12.0 c	77.4 e	3.0 bc
LSD p = 0.05		0.4	0.4	0.5
Variety P-Value		<0.001	<0.001	<0.001
Management		Protein (%)	Test Weight (kg/hL)	Screenings (%)
1.	Untreated	12.0 -	77.4 b	2.6 -
2.	Plus Fungicide	12.1 -	77.9 a	2.4 -
LSD p = 0.05		ns	0.3	ns
Disease Management P-Value		0.371	0.019	0.136
Variety x Disease Management		Protein (%)	Test Weight (kg/hL)	Screenings (%)
No Fungicide		11.3 -	78.9 bc	2.8 -
1.	BigRed	11.7 -	77.7 e-i	2.9 -
2.	RGT Cesario	11.9 -	77.7 e-i	1.4 -
3.	RGT Accroc	13.9 -	75.9 k	1.7 -
4.	Illabo	12.4 -	74.8 m	4.1 -
5.	TA0109	11.8 -	77.4 ghi	2.3 -
6.	Avoca (L12049-044)	12.7 -	78.5 cd	1.7 -
7.	Brighton (V14051-172)	11.7 -	76.5 j	2.8 -
8.	Mammoth (IGW6755)	12.1 -	79.5 a	3.0 -
9.	Stockade	11.6 -	78.0 ef	3.3 -
10.	Triple 2 (AGFWH010222)	11.4 -	77.2 i	2.0 -
11.	AGFWHWW2 (FAR WW2)	11.9 -	77.4 ghi	3.0 -
12.	Longford	11.3 -	78.9 bc	2.8 -
Plus Fungicide		11.3 -	79.3 ab	2.2 -
1.	BigRed	11.3 -	79.3 ab	2.2 -
2.	RGT Cesario	12.1 -	77.8 e-h	2.3 -
3.	RGT Accroc	11.9 -	77.9 efg	1.3 -
4.	Illabo	14.2 -	76.2 jk	1.5 -
5.	TA0109	12.7 -	75.3 l	3.8 -
6.	Avoca (L12049-044)	12.0 -	77.8 e-h	2.8 -
7.	Brighton (V14051-172)	12.4 -	79.2 ab	1.9 -
8.	Mammoth (IGW6755)	11.4 -	79.3 ab	2.3 -
9.	Stockade	12.2 -	79.3 ab	2.7 -
10.	Triple 2 (AGFWH010222)	11.5 -	78.2 de	3.1 -
11.	AGFWHWW2 (FAR WW2)	11.6 -	77.5 f-i	1.8 -
12.	Longford	12.0 -	77.3 hi	3.0 -
LSD p = 0.05		ns	0.5	ns
Variety x Disease Mang. P-Value		0.571	<0.001	0.743

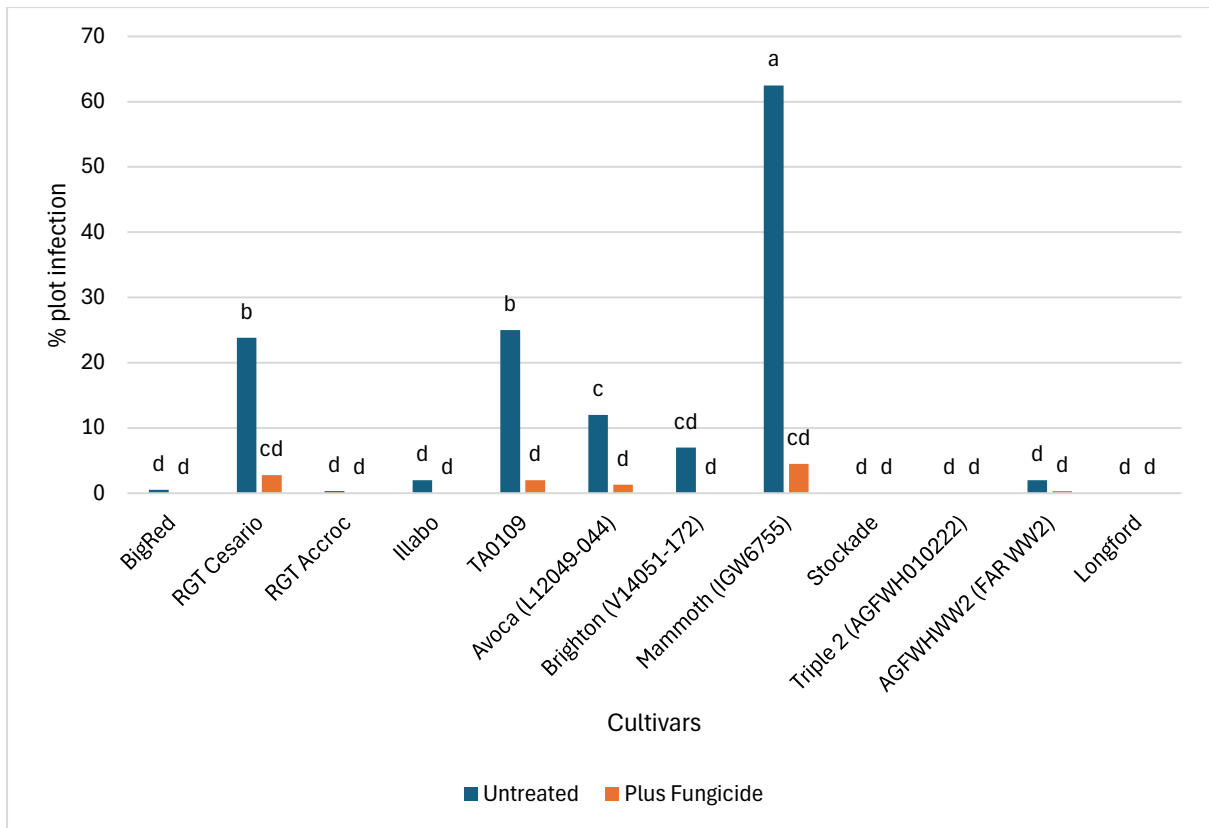


Figure 2. Influence of variety and fungicide application (3 spray programme) on **stripe rust** plot infection (P-Value= <0.001, LSD= 9.47), assessed on 21 October 2024.

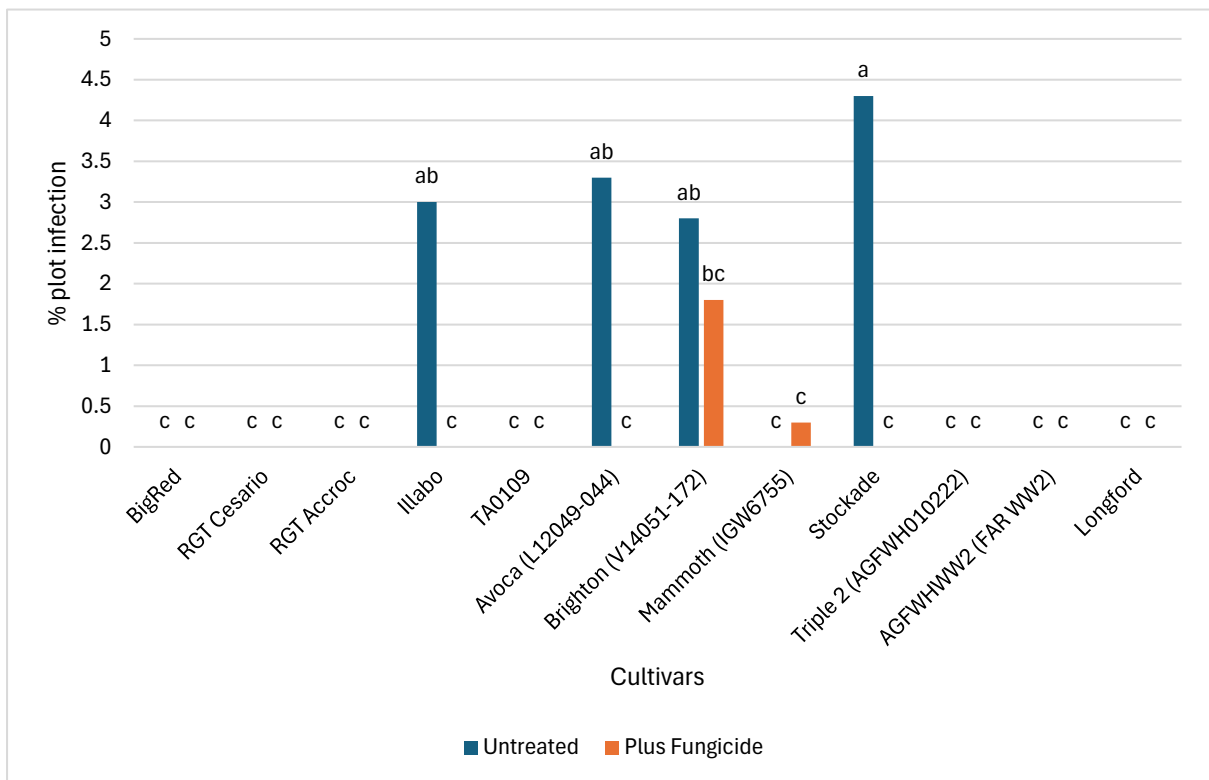


Figure 3. Influence of variety and fungicide application (3 spray programme) on **Septoria tritici blotch (STB)** plot infection (P-Value= <0.001, LSD= 2.05), assessed on 21 October 2024.

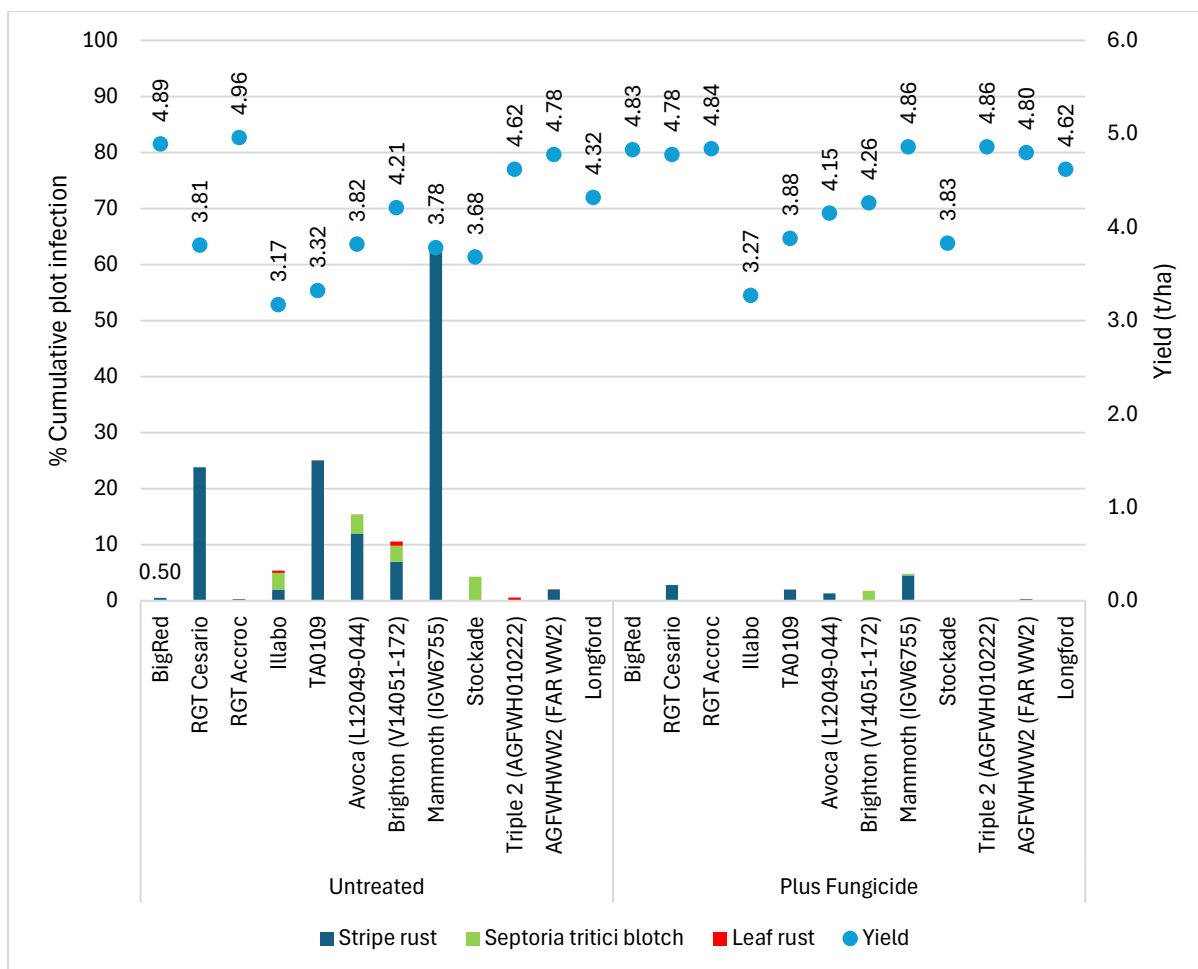


Figure 4. Influence of variety and fungicide application on cumulative plot % infection and yield (t/ha), assessed on 21 October 2024.

Table 3: Number of days from sowing (25 Apr 2024) to GS30 (stem elongation)

Cultivar	Days to GS30 (Stem Elongation)
1. BigRed	117
2. RGT Cesario	117
3. RGT Accroc	109
4. Illabo	102
5. TA0109	85
6. Avoca (L12049-044)	85
7. Brighton (V14051-172)	95
8. Mammoth (IGW6755)	92
9. Stockade	88
10. Triple 2 (AGFWH010222)	102
11. AGFWHWW2 (FAR WW2)	117
12. Longford	117

Canopy Cover percentage (30 Jul 2024)

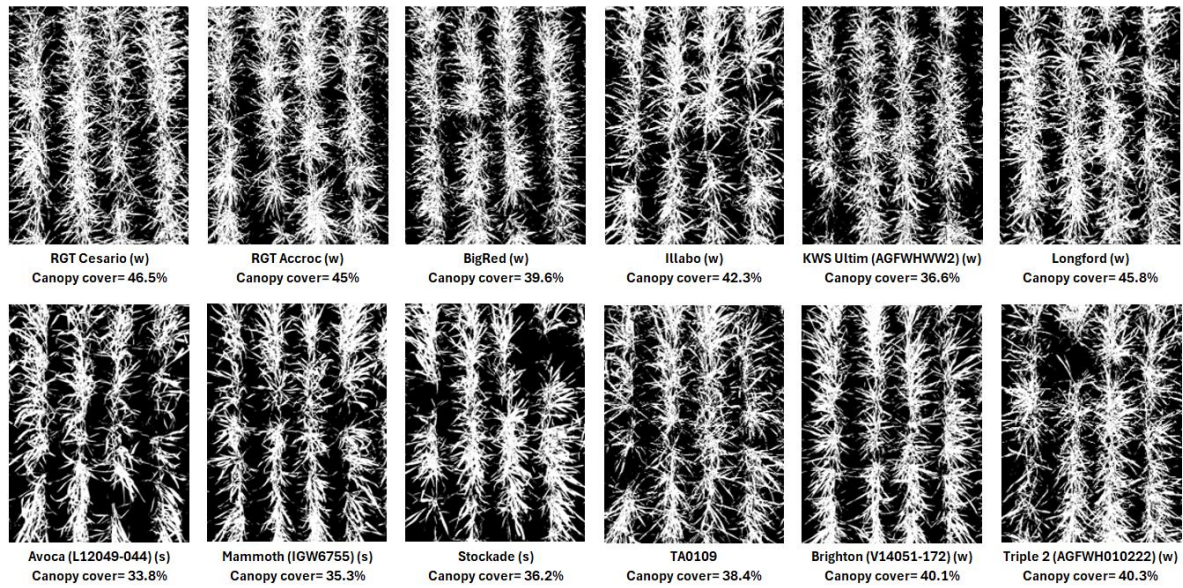


Figure 5. Canopy cover percentage observed on 30 July 2024

Table 3. Trial input and management details.

Sowing date:	25 April 2024		
Harvest date:	16 December 2024		
Seed rate:	180 seeds/m ²		
Basal fertiliser:	25 Apr	100 kg MAP	
Pre-em herbicide:	22 Apr	Treflan 2 L	
		Overwatch 1.25 L/ha	
		Paraquat 2.4 L/ha	
Post-em herbicide:	28 May	Mateno Complete 0.75 L/ha	
	26 Jun	Triathlon 0.75 L/ha	
		Lontrel Advanced 0.125 L/ha	
Nitrogen:	18 July	Urea 109 kg/ha (50 kg N/ha)	
	14 Aug	Urea 217 kg/ha (100 kg N/ha)	
Fungicide:		Untreated	Plus fungicide
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.50 L/ha
	GS59-61	----	Opus 0.50 L/ha

Please note that the label cut off for Opus is ear emergence (GS59).

Meteorological Data

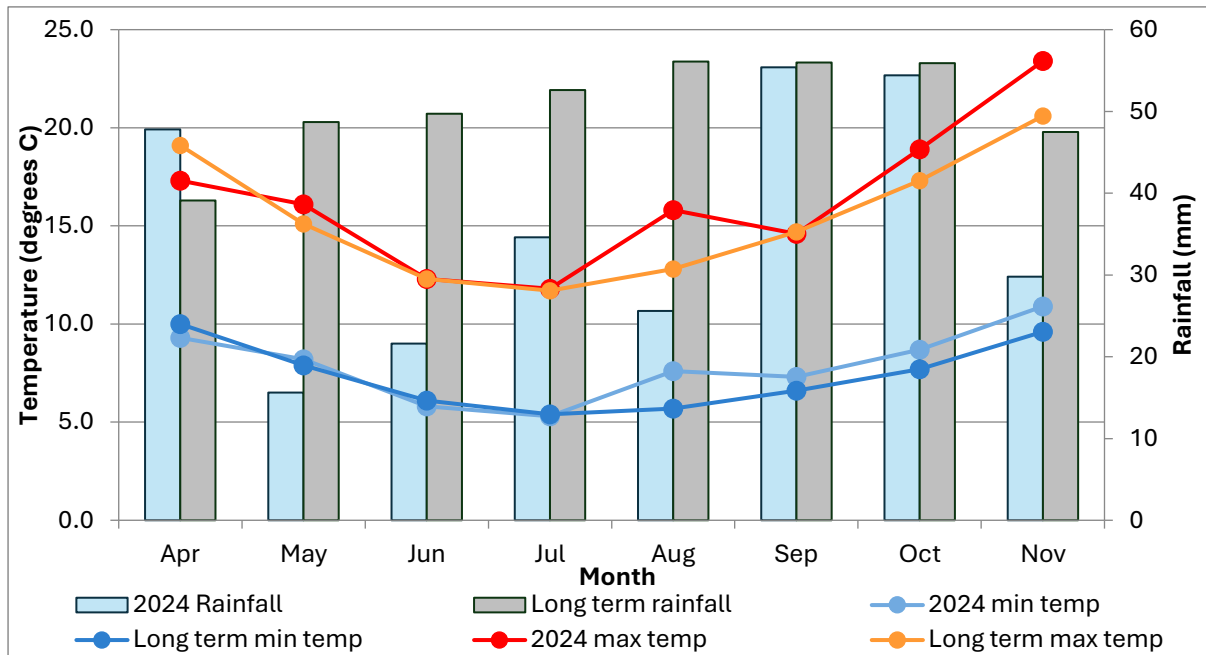


Figure 6. 2024 growing season rainfall and long-term rainfall recorded at Winchelsea Post Office (1898 -2024) and long-term min and max temperatures recorded at Mount Gellibrand (2000 to 2024) for the growing season (April to November). *Rainfall April to November = 284.8mm.*

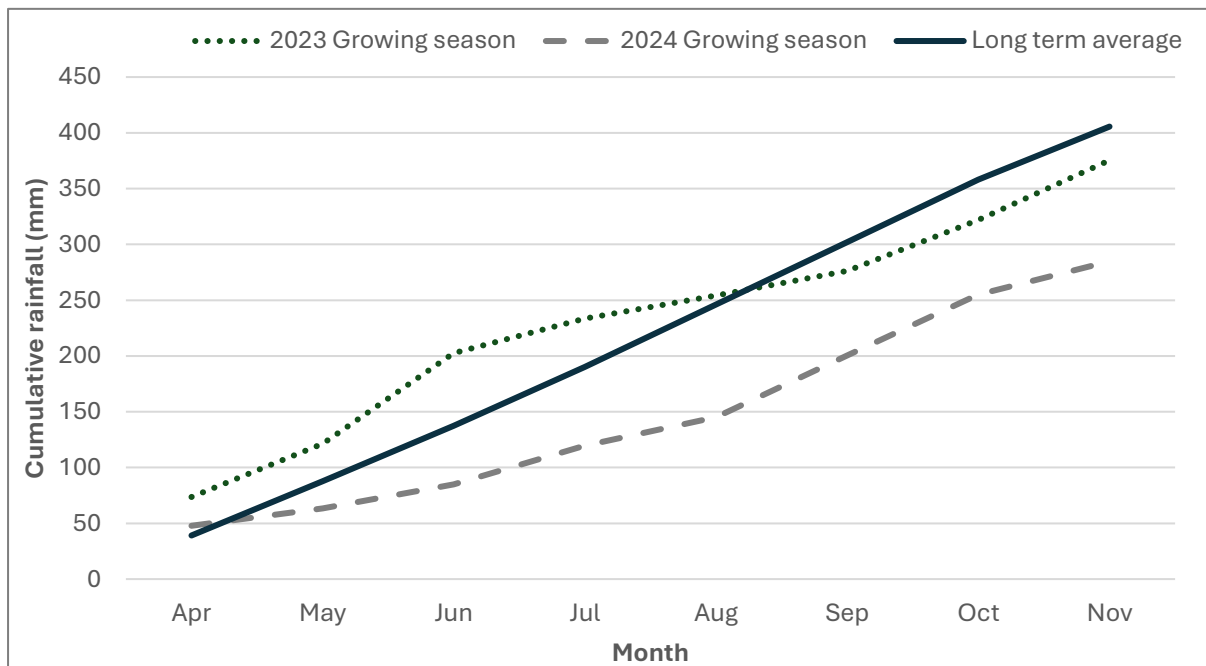


Figure 7. Cumulative growing season rainfall for 2023, 2024 and the long-term average for the growing season (April-November).

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