# INDUSTRY INNOVATIONS: PROVISIONAL HARVEST YIELD RESULTS – April Sown Barley

## 2025 NEV Crop Technology Centre (Yarrawonga)

**Sown:** 30 April 2025
**Harvested:** 25 November 2025
**Rotation position:** 2024 – Canola, 2023 – Vetch
**Soil type & management:** Brown silty clay loam; canola stubble raked pre sow.

**FAR trial code:** FAR NEV B25-78
**Growing season rainfall:** 210.5mm

*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 barleys, managed with and without fungicide against four regional controls (Minotaur, Neo CL, RGT Planet, and Rosalind), sown in late April in the Yarrawonga (northeast Victoria) medium rainfall environment.
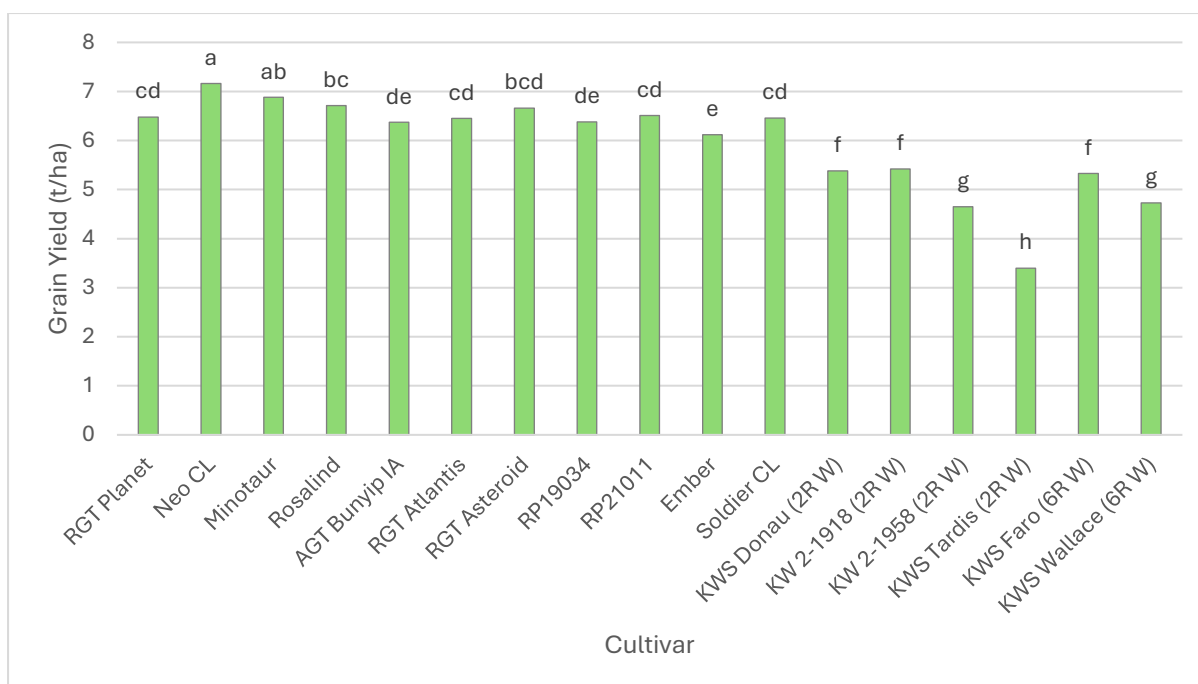
### Key Points

- *There was low disease pressure in the trial which has resulted in no statistical yield or grain quality response to applied foliar fungicides.*
- *There were significant yield differences between varieties (p<0.001), Neo CL being the highest yielding variety yielding 7.16t/ha although this was not statistically better than Minotaur yielding 6.88t/ha.*
- *The 6 winter barleys tested were lower yielding than all the spring barleys, the best of the winters being KWS Donau, KW 2-1918, and the 6 row KWS Faro yielding 5.38, 5.42 and 5.33t/ha respectively.*
- *Grain protein was generally high with all varieties exceeding 12%, the winter barleys had the highest grain proteins 13.8-15.7%.*
- *Excluding grain protein, Minotaur was the only variety to meet malt specifications for test weight, retention and screening, most other varieties had too high screenings and too low retentions.*
- *Scald, net form net blotch (NFNB), and spot form net blotch (SFNB) were all present in the trial with scald being the most dominant disease. RGT Planet had the highest levels of infection for all three diseases: 20.0% Scald, 8.7% NFNB, 1.3% SFNB (plot infection of untreated plots).*

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

**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 | |
| RGT Planet (s) | 6.36 | - | 6.61 | - | **6.48** | cd |
| Neo CL (s) | 7.22 | - | 7.10 | - | **7.16** | a |
| Minotaur (s) | 6.98 | - | 6.78 | - | **6.88** | ab |
| Rosalind (s) | 6.74 | - | 6.67 | - | **6.71** | bc |
| AGT Bunyip IA (AGTB0530) (s) | 6.33 | - | 6.41 | - | **6.37** | de |
| RGT Atlantis (s) | 6.34 | - | 6.57 | - | **6.45** | cd |
| RGT Asteroid (s) | 6.69 | - | 6.63 | - | **6.66** | bcd |
| RP19034 (s) | 6.42 | - | 6.35 | - | **6.38** | de |
| RP21011 (s) | 6.31 | - | 6.71 | - | **6.51** | cd |
| Ember (IGB21130) (s) | 6.26 | - | 5.99 | - | **6.12** | e |
| Soldier CL (IGB22117) (s) | 6.60 | - | 6.32 | - | **6.46** | cd |
| KWS Donau (2R W) | 5.31 | - | 5.45 | - | **5.38** | f |
| KW 2-1918 (2R W) | 5.31 | - | 5.53 | - | **5.42** | f |
| KW 2-1958 (2R W) | 4.62 | - | 4.67 | - | **4.65** | g |
| KWS Tardis (2R W) | 3.70 | - | 3.09 | - | **3.40** | h |
| KWS Faro (6R W) | 5.44 | - | 5.22 | - | **5.33** | f |
| KWS Wallace (6R W) | 4.87 | - | 4.60 | - | **4.73** | g |
| Mean | 5.97 | - | 5.92 | - | | |
| LSD Cultivar p = 0.05 | 0.32 | | | P value | <0.001 | |
| LSD Management p = 0.05 | ns | | | P value | 0.779 | |
| LSD Cultivar x Man. p = 0.05 | ns | | | P value | 0.265 | |

S – spring varieties (all two row), W - winter varieties, 6R – 6 row, 2R – 2 row

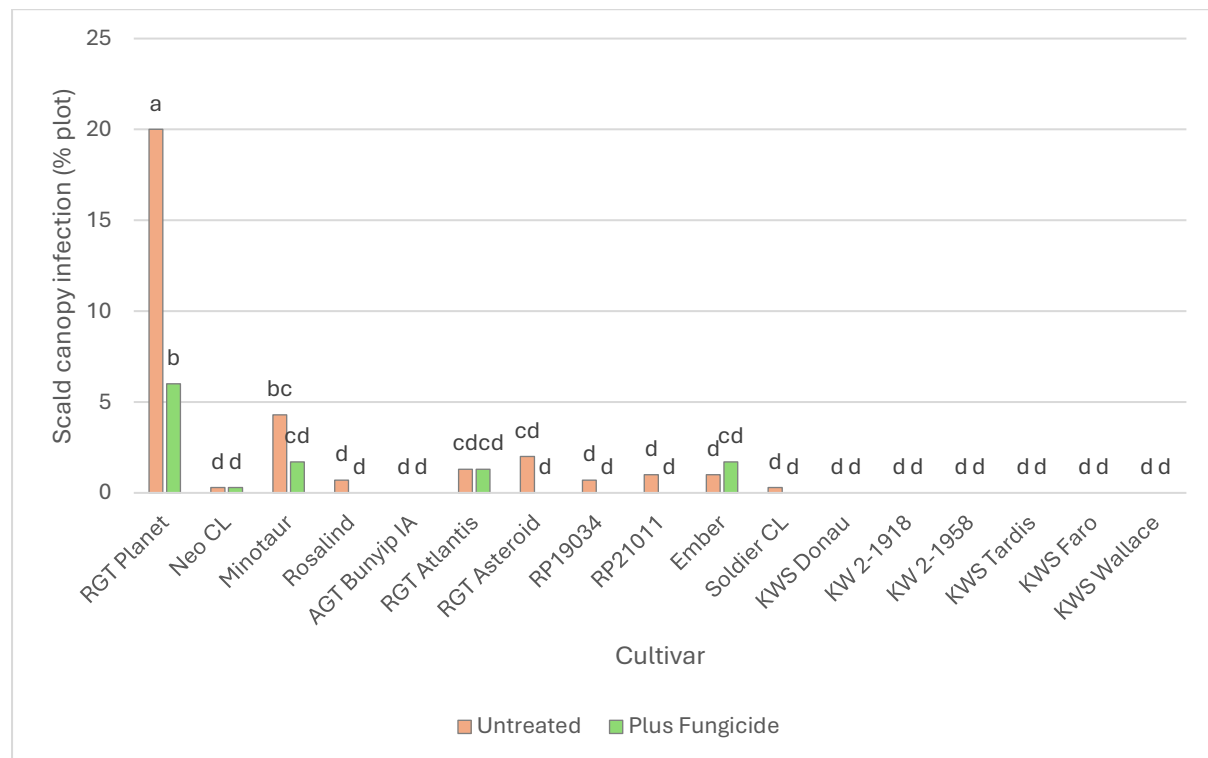**Figure 1.** Influence of barley cultivar on grain yield (t/ha). Means of plus and minus fungicide treatments, P < 0.001, LSD (p=0.05) = 0.32.
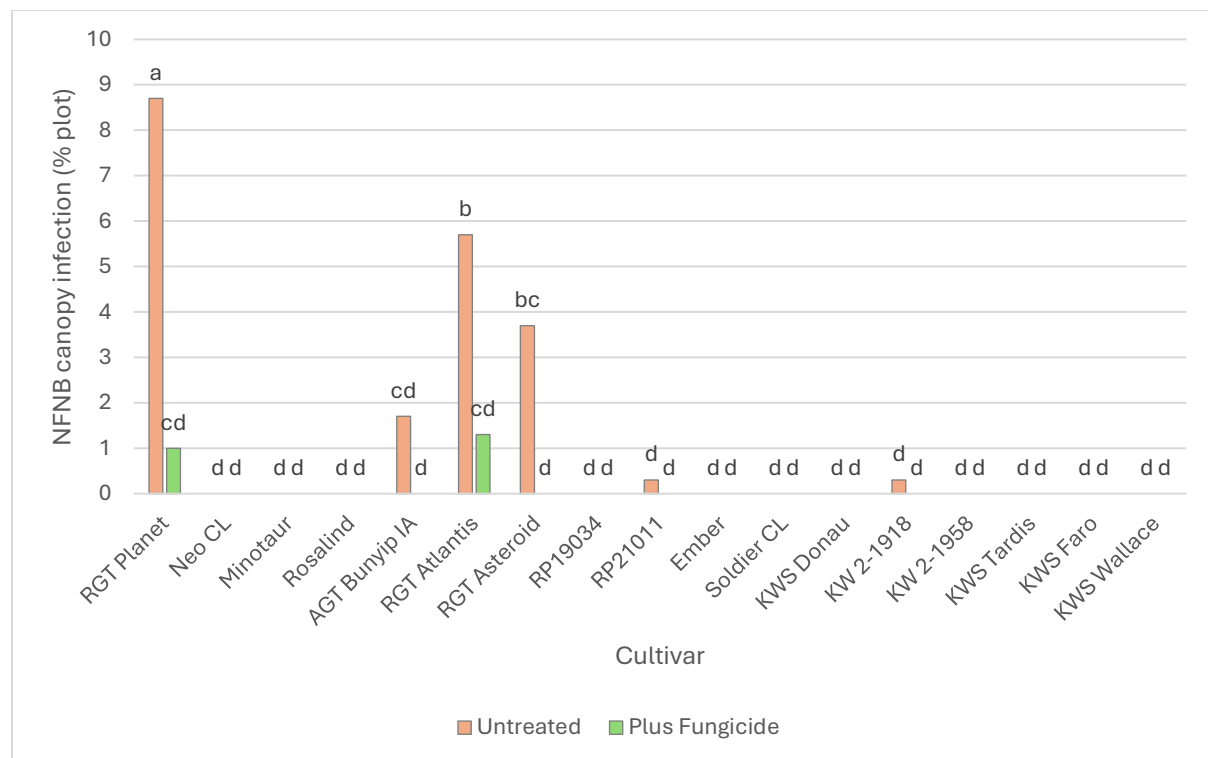
**Table 2.** Influence of fungicide application or variety on the grain quality (protein – corrected to 0% moisture, starch, fibre, test weight, retention and screenings) of barley varieties.

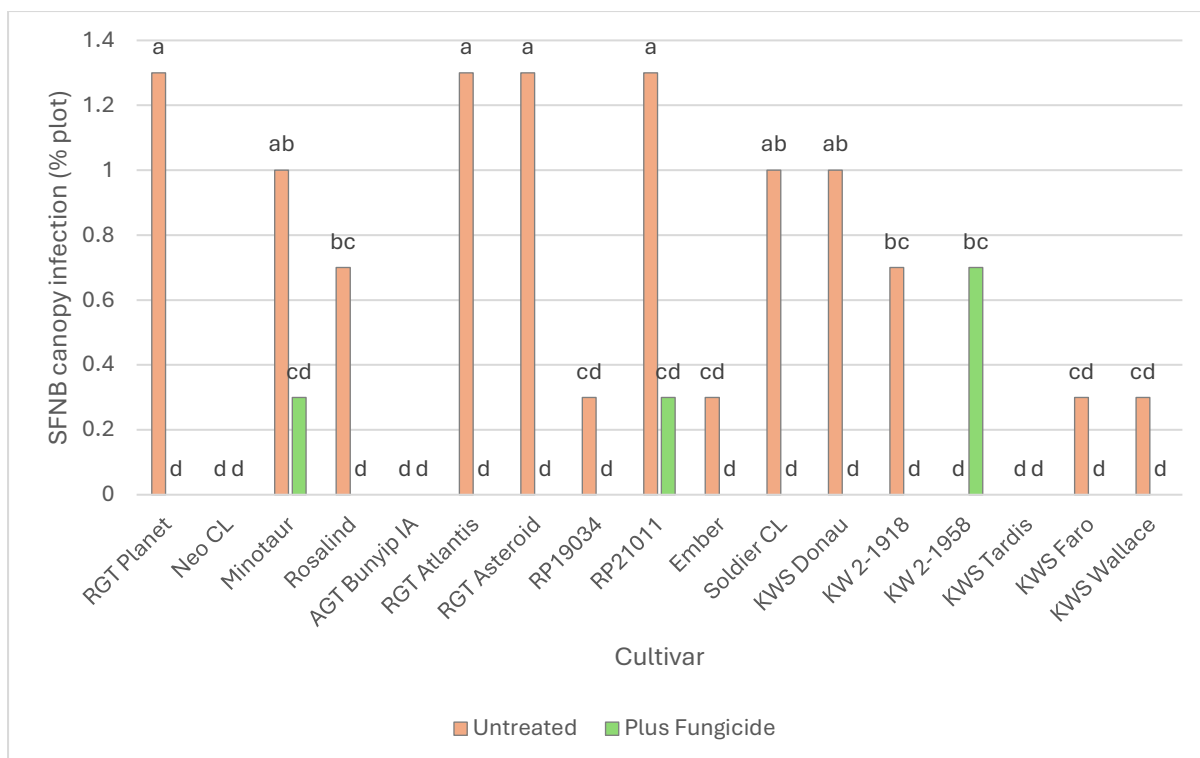| | | Protein % | | Starch % | | Fibre % | | Test Weight kg/hL | | Retention % | | Screenings % | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Untreated | 13.6 | - | 59.9 | - | 4.0 | - | 66.1 | - | 45.0 | - | 17.4 | - |
| 2 | Full Fungicide | 13.1 | - | 60.3 | - | 3.9 | - | 66.4 | - | 47.2 | - | 15.4 | - |
| Pval | | 0.091 | | 0.144 | | 0.638 | | 0.605 | | 0.201 | | 0.322 | |
| LSD P=.05 | | ns | | ns | | ns | | ns | | ns | | ns | |
| | | Protein % | | Starch % | | Fibre % | | Test Weight kg/hL | | Retention % | | Screenings % | |
| 1 | RGT Planet | 12.5 | fgh | 60.4 | def | 3.8 | fgh | 65.4 | fgh | 39.4 | e | 19.9 | c |
| 2 | Neo CL | 12.0 | h | 60.6 | cde | 3.8 | fgh | 65.8 | e-h | 64.3 | ab | 8.1 | ef |
| 3 | Minotaur | 12.4 | fgh | 61.6 | a | 3.3 | i | 69.2 | ab | 72.0 | a | 5.4 | f |
| 4 | Rosalind | 12.1 | h | 59.9 | fgh | 4.1 | def | 68.8 | bc | 71.4 | a | 8.4 | ef |
| 5 | AGT Bunyip IA | 12.6 | fgh | 61.2 | ab | 3.8 | gh | 70.7 | a | 71.0 | a | 10.8 | def |
| 6 | RGT Atlantis | 12.9 | efg | 59.3 | ijk | 4.3 | abc | 64.6 | hij | 47.6 | de | 14.7 | cde |
| 7 | RGT Asteroid | 13.3 | de | 59.7 | g-j | 4.0 | efg | 65.2 | ghi | 44.6 | de | 14.2 | cde |
| 8 | RP19034 | 13.3 | de | 60.6 | cde | 3.7 | h | 66.8 | def | 39.4 | e | 14.8 | cde |
| 9 | RP21011 | 12.3 | gh | 59.9 | f-i | 4.1 | cde | 63.8 | ij | 46.0 | de | 18.0 | cd |
| 10 | Ember | 12.9 | efg | 59.5 | h-k | 4.1 | cde | 66.6 | d-g | 40.5 | e | 13.2 | c-f |
| 11 | Soldier CL | 13.0 | ef | 61.1 | abc | 3.8 | gh | 67.8 | bcd | 60.9 | bc | 6.7 | ef |
| 12 | KWS Donau | 13.8 | cd | 60.8 | bcd | 3.7 | h | 64.8 | hi | 67.6 | ab | 12.7 | c-f |
| 13 | KW 2-1918 | 14.3 | bc | 59.1 | k | 4.2 | b-e | 65.1 | ghi | 10.0 | f | 31.2 | b |
| 14 | KW 2-1958 | 14.4 | b | 60.6 | cde | 3.7 | h | 67.2 | cde | 51.0 | cd | 9.2 | ef |
| 15 | KWS Tardis | 15.7 | a | 60.1 | efg | 4.4 | ab | 65.6 | e-h | 41.5 | de | 11.3 | c-f |
| 16 | KWS Faro | 14.5 | b | 59.2 | jk | 4.2 | a-d | 65.3 | f-i | 10.1 | f | 39.6 | ab |
| 17 | KWS Wallace | 14.8 | b | 58.4 | l | 4.4 | a | 63.2 | j | 7.0 | f | 40.3 | a |
| | Grand Mean | 13.3 | | 60.1 | | 4.0 | | 66.2 | | 46.1 | | 16.4 | |
| | Pval | <0.001 | | <0.001 | | <0.001 | | <0.001 | | <0.001 | | <0.001 | |
| | LSD P=.05 | 0.6 | | 0.6 | | 0.2 | | 1.6 | | 10.0 | | 8.7 | |

**Figure 2.** Influence of variety and fungicide application (2 spray programme) on **scald** plot infection (P-Value < 0.001, LSD (p=0.05) = 3.2), assessed on 21 October 2025.
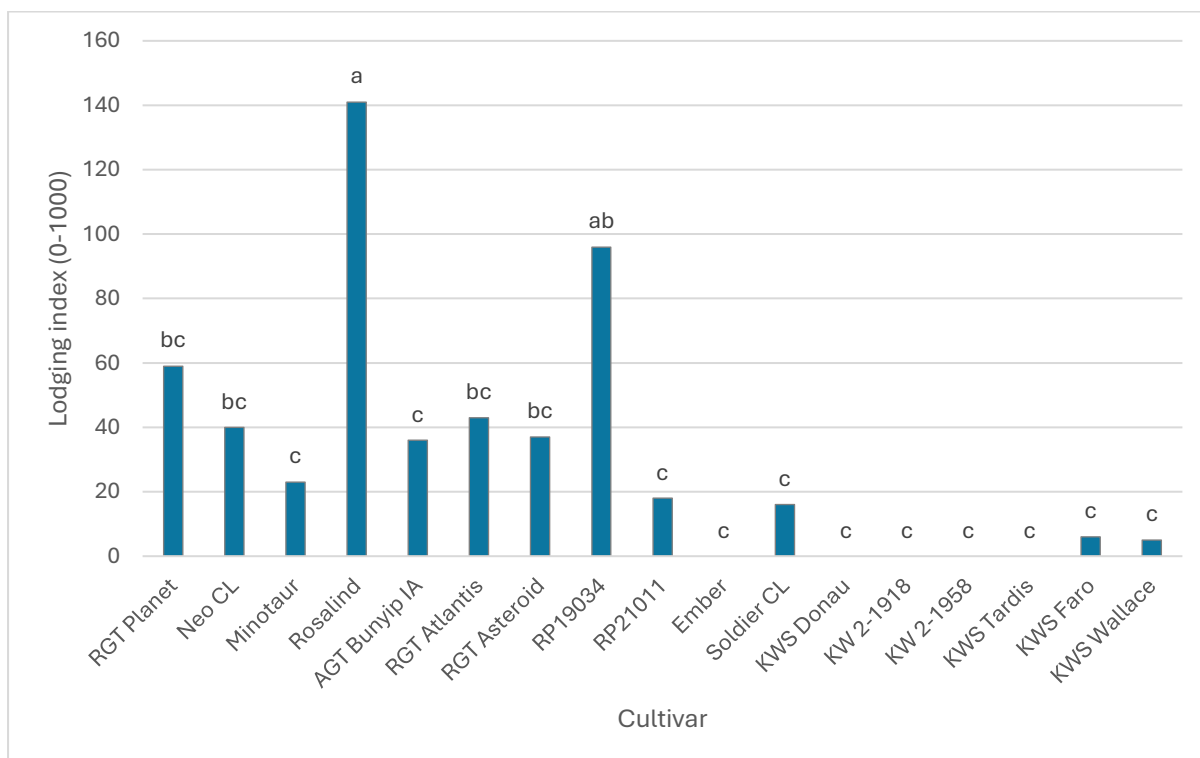


**Figure 3.** Influence of variety and fungicide application (2 spray programme) on **net form net blotch (NFNB)** plot infection (P-Value = 0.042, LSD (p=0.05) = 2.8), assessed on 21 October 2025.

**Figure 4.** Influence of variety and fungicide application (2 spray programme) on **spot form net blotch (SFNB)** plot infection (P-Value = 0.001, LSD (p=0.05) = 0.6), assessed on 21 October 2025.

*Lodging*



**Figure 5.** Influence of barley variety on lodging index (0-1000) (P-Value = 0.001, LSD (p=0.05) = 59.9), assessed on 25 November 2025.

## Development (Phenology)

**Table 3.** Phenology assessments (Zadoks stage) conducted throughout the growing season.

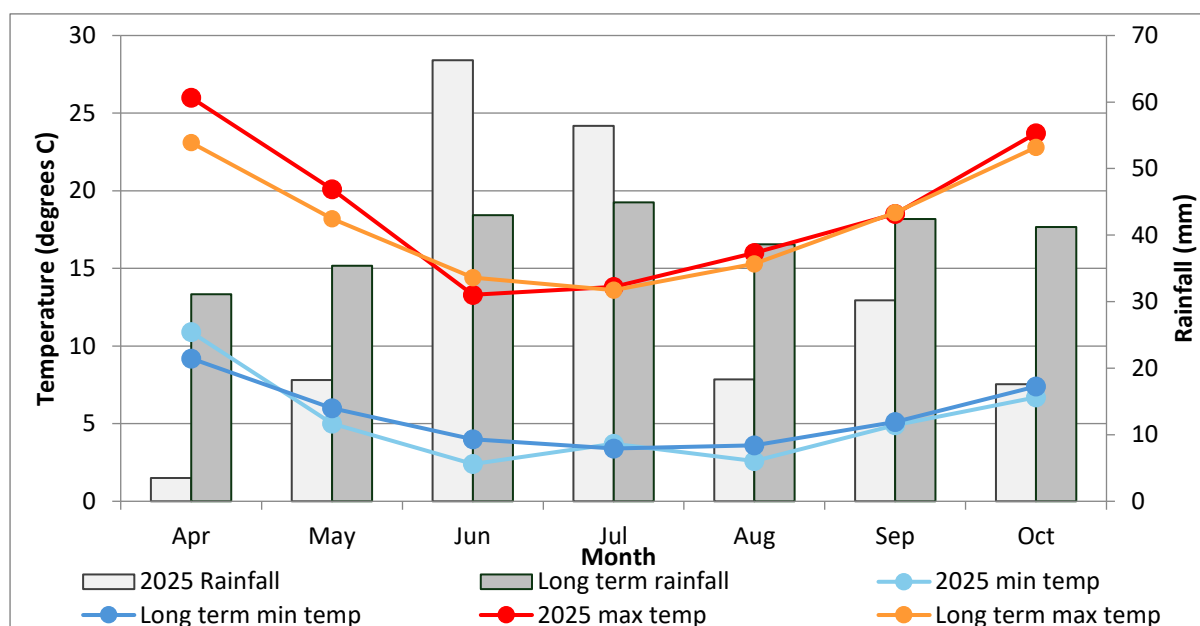| Variety | 15-Jul | 25-Jul | 12-Aug | 25-Aug | 1-Sep | 10-Sep | 18-Sep | 1-Oct | 6-Oct | 21-Oct |
|---|---|---|---|---|---|---|---|---|---|---|
| RGT Planet | 27 | 27 | 31 | 32 | | 41 | 49 | 57 | | 85 |
| Neo CL | 28 | 28 | 31 | 32 | | 43 | 49 | 59-65 | | 85 |
| Minotaur | 26 | 27 | 31 | 31/32 | | 37 | 45/49 | 55 | | 83 |
| Rosalind | 23 | 30 | 32 | 33 | | 43 | 49/51 | 59-65 | | 87 |
| AGT Bunyip IA | 25 | 25 | 32 | 33 | | 43 | 51 | 65 | 71 | 87 |
| RGT Atlantis | 27 | 27 | 32 | 32 | | 41 | 49 | 53 | 57/65 | 85 |
| RGT Asteroid | 26 | 26 | 31 | 32 | | 39 | 45 | 55 | 57/65 | 85 |
| RP19034 | 27 | 27 | 31 | 32 | | 39 | 49 | 57-61 | | 87 |
| RP21011 | 26 | 26 | 31 | 32 | | 41 | 49 | 57 | 71 | 87 |
| Ember | 27 | 28 | 30 | 31/32 | | 37 | 43 | 51 | | 56/75 |
| Soldier CL | 25 | 28 | 31 | 32 | | 41 | 45 | 59-65 | | 85 |
| **KWS Donau** | **29** | **29** | **29** | **31** | **31** | **33** | **37** | **49** | | **83** |
| **KW 2-1918** | **26** | **27** | **29** | **31/30** | **31** | **32/33** | **37** | **49** | | **83** |
| **KW 2-1958** | **28** | **28** | **29** | **30** | **31** | **32/33** | **33** | **47** | **49** | **58/75** |
| **KWS Tardis** | **25** | **28** | **29** | **31** | **30** | **31/32** | **33** | **42** | | **53/69** |
| **KWS Faro** | **28** | **28** | **29** | **30/31** | **31/32** | **32/33** | **37** | **49** | | **83** |
| **KWS Wallace** | **26** | **26** | **30** | **30/31** | **31** | **32** | **33** | **45** | **49** | **71** |

*Zadoks stages in bold are later developing winter barley varieties*

## Trial inputs

**Table 4.** Trial input and management details.

| | | |
|---|---|---|
| **Sowing date:** | | **30 April** |
| **Harvest date:** | | **25 November** |
| **Seed rate:** | | 180 seeds/m$^2$ |
| **Basal fertiliser:** | 30 April | 100 kg MAP/ha |
| | | |
| **Pre-em herbicide:** | 29 April | Treflan 2.5L/ha |
| | | Reglone 200 1.8L/ha |
| | | Gramoxone 360 1.2L/ha |
| | | Boxer Gold 2.5L/ha |
| | | BS1000 0.16% |
| | | |
| **Post-em herbicide:** | 1 July | Mateno Complete 750mL/ha |
| | 23 Sep | Dimethoate 400 200mL/ha |
| | | |
| **Nitrogen:** | 23 July | Urea 217 kg/ha (100kg N/ha) |
| | 28 Aug | Urea 109 kg/ha (50kg N/ha) |

| **Fungicide:** | | **Untreated** | **Plus fungicide** |
|---|---|---|---|
| | GS31 | ---- | Prosaro 300 mL/ha |
| | | | Wetter 1000 0.2% |
| | GS39 | ---- | Revystar 750mL/ha |

**Meteorological Data**



**Figure 6.** 2025 growing season rainfall recorded on site and long-term rainfall recorded at Yarrawonga (1993 to 2025) and 2025 minimum and maximum temperatures and long-term mean recorded at Yarrawonga (1993 to 2025) for the growing season (Apr-Oct). *Rainfall June to October = 210.5mm*.



**Figure 7.** Cumulative growing season rainfall for 2025 (recorded on site), 2024 and the long-term average recorded at Yarrawonga.