INDUSTRY INNOVATIONS 2025: PROVISIONAL HARVEST RESULTS – Early May Sown Barley

2025 WA Esperance Crop Technology Centre (Neridup)

WA Barley HRZ (FAR WAE II B25-52-01)

Sown: 01 May 2025
Harvested: 26 November 2025
Soil Type: Shallow Sandy Duplex

Previous Crop: 2024 Canola
FAR Code: FAR WAE II B25-52-01
GSR (Apr-Oct): 442mm

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.

Key Points

- *A wetter growing season with almost 200mm more rain than 2024 resulted in yields ranging from 5.1-7.4 t/ha- 1.2t/ha higher on average than 2024 barley yields of a similar sowing date.*
- *Ember with fungicides applied was the highest yielding treatment, closely followed by Neo CL and Firefoxx (6.99t/ha) which were not significantly different (Figure 1).*
- *Despite the significant fungicide effect on SFNB disease scores in four out of ten varieties, there was no significant interaction between varieties and fungicide management on yield, likely due to the low level of disease recorded. Similarly, the significant reduction in NFNB infection in RGT Atlantis through fungicide intervention did not translate into a significant yield increase however overall varieties yielded 0.35t/ha better with fungicide intervention.*
- *Minotaur was the only variety to achieve malt status as per CBH 2025/26 Barley Receival Standards. All varieties were within malt range for protein (9.5-12.8%), retention (>80%) and screenings, however Minotaur was the only variety to achieve a test weight above 64kg/hL (Table 3).*
- *There was a significant yield response to fungicide application (p=0.026), with a full fungicide programme increasing mean yield by 0.35t/ha compared to mean untreated yield (Table 1). Likely due to the significant decreases in levels of net form net blotch (NFNB) in RGT Atlantis (Figure 2) and spot form net blotch (SFNB) in RGT Planet, RP21011, Ember (*tested as IGB21130*) and Firefoxx (Figure 3) with full fungicide protection. Fungicide management did not significantly affect any other grain parameters.*
- *Due to adverse weather pushing harvest date later, there was significant differences in head loss between varieties. Rosalind, the fastest developing variety, along with RP19034 and RGT Planet had the highest amount of loss, approximately 43 heads/m^2 (Figure 4).*

Yield (t/ha) & Quality Data (Protein %, Test Weight, Screenings %)

There was a significant difference in yield and grain quality criteria due to variety (P<0.001). Fungicide management significantly impacted yield but not grain quality (P=0.026). There was no interaction between fungicide and variety significantly effecting yield and quality data.

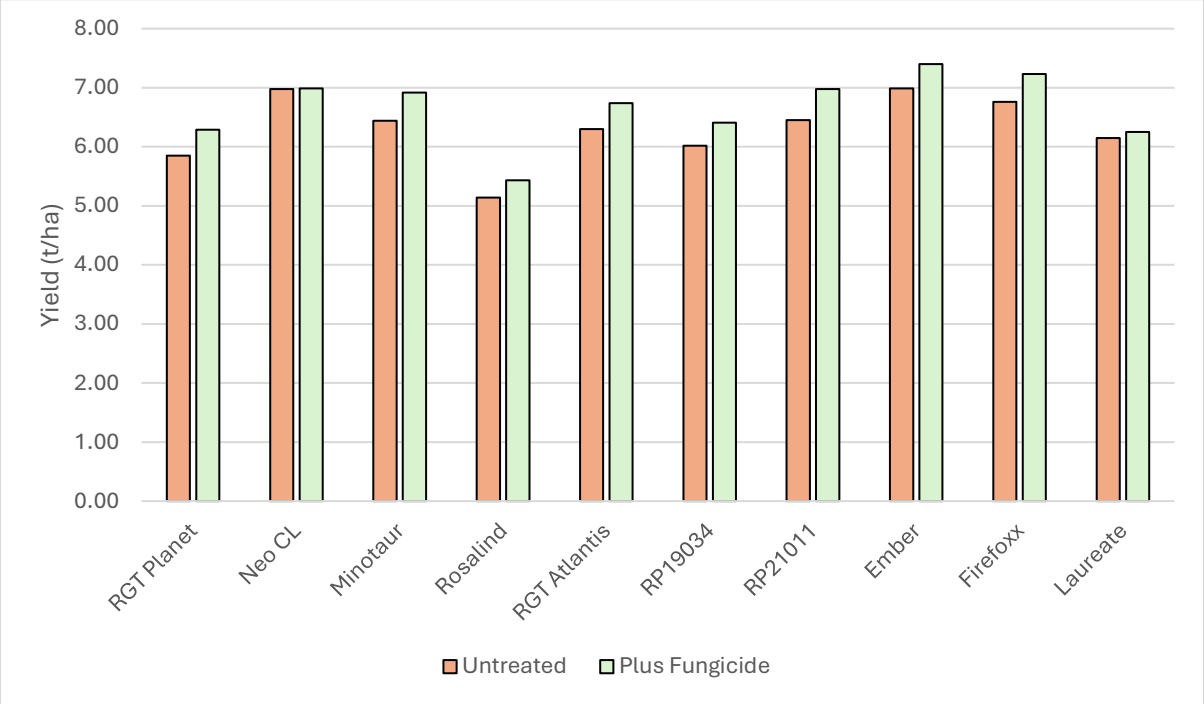

Figure 1. Influence of Fungicide and Variety on Grain Yield (t/ha) (P Value= 0.87, LSD=ns).

Table 1. Influence of Variety and Fungicide on the Grain Yield (t/ha)

		Yield (t/ha)					
Variety		**Untreated**		**Plus Fungicide**		**Mean**	
1	RGT Planet	5.85	-	6.29	-	**6.07**	**e**
2	Neo CL	6.98	-	6.99	-	**6.99**	**ab**
3	Minotaur	6.44	-	6.92	-	**6.68**	**bc**
4	Rosalind	5.14	-	5.43	-	**5.29**	**f**
5	RGT Atlantis	6.30	-	6.74	-	**6.52**	**cd**
6	RP19034	6.02	-	6.41	-	**6.22**	**de**
7	RP21011	6.45	-	6.98	-	**6.71**	**bc**
8	Ember (Tested as IGB21130)	6.99	-	7.40	-	**7.20**	**a**
9	Firefoxx	6.76	-	7.23	-	**6.99**	**ab**
10	Laureate	6.15	-	6.25	-	**6.20**	**de**
	Mean	**6.31**	**b**	**6.66**	**a**	**6.48**	
	LSD Variety p = 0.05	0.35		**P Value**		<0.001	
	LSD Management p = 0.05	0.27		**P Value**		0.026	
	LSD Variety x Man. p = 0.05	ns		**P Value**		0.872	

Table 2. Influence of Fungicide and Variety on Grain Protein (%)

		Protein (%)					
Variety		**Untreated**		**Plus Fungicide**		**Mean**	
1	RGT Planet	10.5	-	10.2	-	**10.3**	**cd**
2	Neo CL	9.9	-	10.1	-	**10.0**	**efg**
3	Minotaur	9.7	-	10.0	-	**9.8**	**fg**
4	Rosalind	11.3	-	11.0	-	**11.2**	**a**
5	RGT Atlantis	10.3	-	10.0	-	**10.1**	**def**
6	RP19034	11.1	-	10.7	-	**10.9**	**ab**
7	RP21011	10.5	-	10.3	-	**10.4**	**cd**
8	Ember (Tested as IGB21130)	9.8	-	9.6	-	**9.7**	**g**
9	Firefoxx	10.4	-	10.1	-	**10.3**	**cde**
10	Laureate	10.6	-	10.6	-	**10.6**	**bc**
Mean		**10.4**	**-**	**10.2**	**-**	**10.33**	
LSD Variety p = 0.05		0.9		**P Value**		<0.001	
LSD Management p = 0.05		ns		**P Value**		0.281	
LSD Variety x Man. p = 0.05		ns		**P Value**		0.548	

Table 3. Influence of Fungicide and Variety on Test Weight (kg/hL)

		Test Weight (kg/hL)					
Variety		**Untreated**		**Plus Fungicide**		**Mean**	
1	RGT Planet	62.3	-	62.8	-	**62.5**	**bc**
2	Neo CL	60.8	-	61.8	-	**61.3**	**de**
3	Minotaur	65.0	-	64.5	-	**64.7**	**a**
4	Rosalind	61.2	-	61.6	-	**61.4**	**d**
5	RGT Atlantis	60.1	-	60.9	-	**60.5**	**e**
6	RP19034	62.9	-	63.3	-	**63.1**	**b**
7	RP21011	61.2	-	61.7	-	**61.5**	**d**
8	Ember (Tested as IGB 21130)	61.2	-	62.4	-	**61.8**	**cd**
9	Firefoxx	60.5	-	61.7	-	**61.1**	**de**
10	Laureate	61.2	-	60.8	-	**61**	**de**
Mean		**61.6**	**-**	**62.1**	**-**	**61.88**	
LSD Variety p = 0.05		0.9		**P Value**		<0.001	
LSD Management p = 0.05		ns		**P Value**		0.190	
LSD Variety x Man. p = 0.05		ns		**P Value**		0.533	

Table 4. Influence of Fungicide and Variety on Retention (% > 2.5mm)

		Retention (%)					
Variety		**Untreated**		**Plus Fungicide**		**Mean**	
1	RGT Planet	94.0	-	96.2	-	**95.1**	**a**
2	Neo CL	95.6	-	96.6	-	**96.1**	**a**
3	Minotaur	94.4	-	87.6	-	**91.0**	**b**
4	Rosalind	90.3	-	91.6	-	**91.0**	**b**
5	RGT Atlantis	95.2	-	97.4	-	**96.3**	**a**
6	RP19034	93.3	-	95.5	-	**94.4**	**ab**
7	RP21011	95.6	-	97	-	**96.3**	**a**
8	Ember (Tested as IGB 21130)	94.0	-	96.7	-	**95.4**	**a**
9	Firefoxx	92.3	-	94.9	-	**93.6**	**ab**
10	Laureate	94.9	-	96.4	-	**95.6**	**a**
	Mean	**94.0**	**-**	**95.0**	**-**	**94.5**	
	LSD Variety p = 0.05	3.6		**P Value**		0.013	
	LSD Management p = 0.05	ns		**P Value**		0.499	
	LSD Variety x Man. p = 0.05	ns		**P Value**		0.274	

Table 5. Influence of Fungicide and Variety on Screenings (% < 2.2mm)

		Screenings (%)					
Variety		**Untreated**		**Plus Fungicide**		**Mean**	
1	RGT Planet	1.1	-	0.8	-	**0.9**	**d**
2	Neo CL	1.0	-	0.8	-	**0.9**	**d**
3	Minotaur	1.3	-	1.1	-	**1.2**	**bc**
4	Rosalind	1.8	-	1.5	-	**1.7**	**a**
5	RGT Atlantis	1.1	-	0.7	-	**0.9**	**d**
6	RP19034	1.5	-	1.1	-	**1.3**	**b**
7	RP21011	1.0	-	0.6	-	**0.8**	**d**
8	Ember (Tested as IGB 21130)	1.0	-	0.7	-	**0.9**	**d**
9	Firefoxx	1.5	-	1.2	-	**1.3**	**b**
10	Laureate	1.1	-	0.9	-	**1.0**	**cd**
	Mean	**1.2**	**-**	**0.9**	**-**	**1.1**	
	LSD Variety p = 0.05	0.3		**P Value**		0.000	
	LSD Management p = 0.05	ns		**P Value**		0.148	
	LSD Variety x Man. p = 0.05	ns		**P Value**		0.965	

Disease Assessment Data

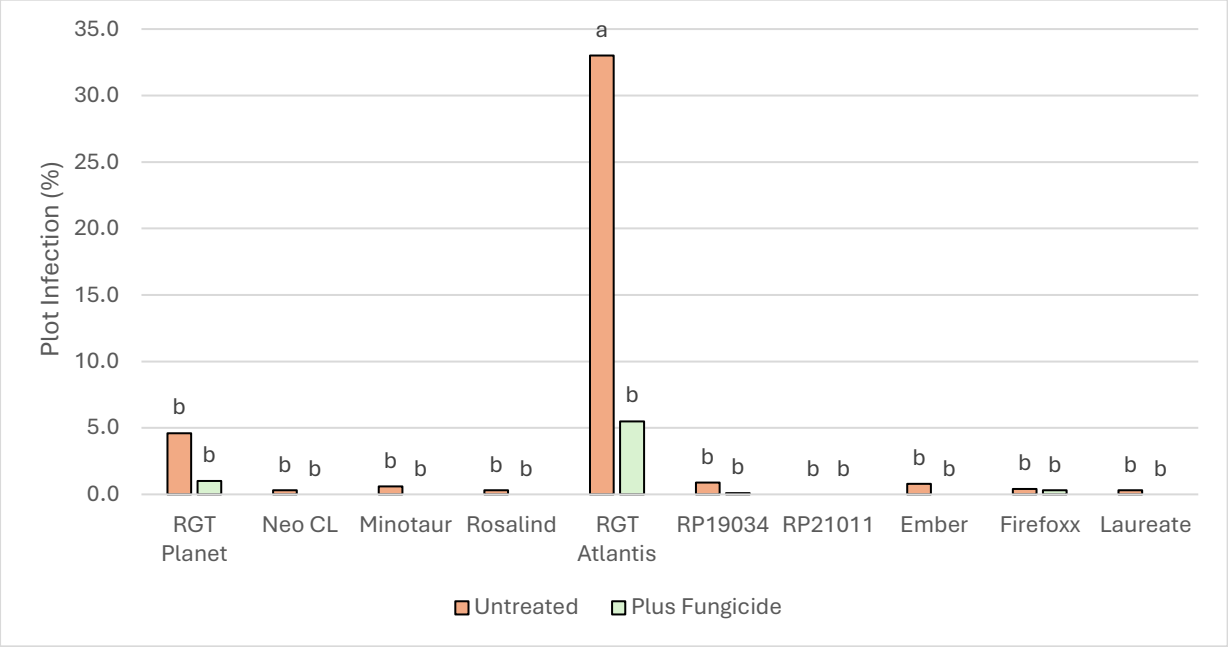

Figure 2. Influence of Barley Variety on the Net Form Net Blotch (NFNB)- Assessed on 17 September 2025 (P Value= <0.001, LSD= 6.6%).

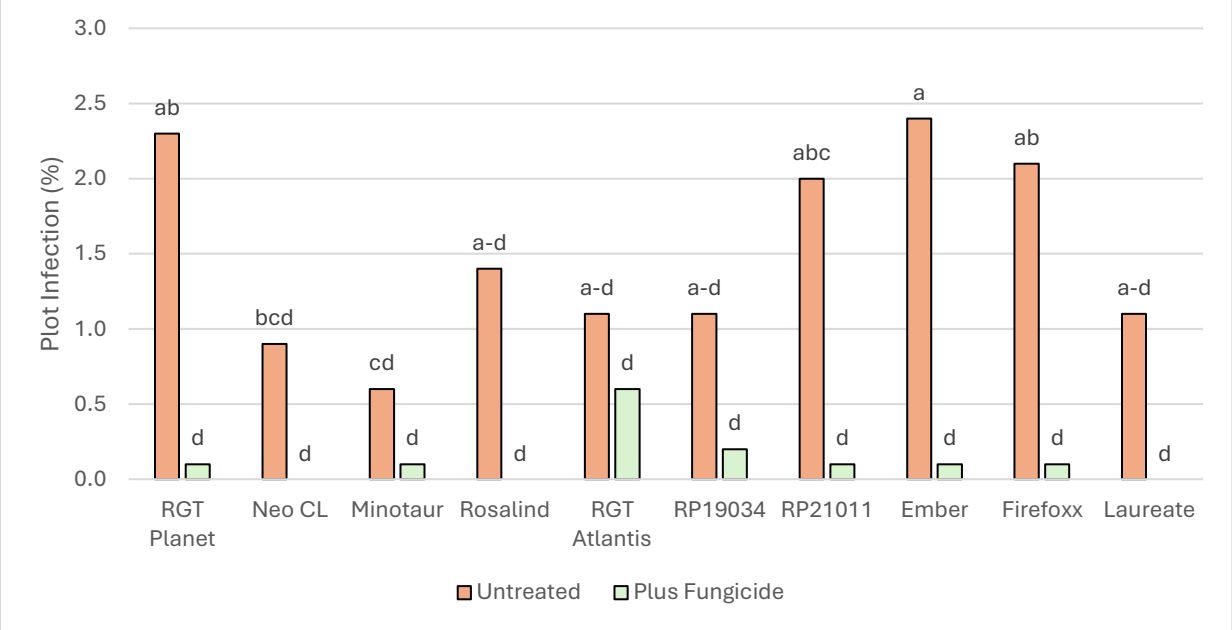

Figure 3. Influence of Barley Variety on the Spot Form Net Blotch (SFNB) - Assessed on 17 September 2025 (P Value= 0.029, LSD= 0.9%).

Phenology

There was no significant difference in NDVI caused by fungicide management. There were however significant differences in NDVI data of the different varieties, which reflects differences in phenology. Rosalind was the fastest maturing variety, had the lowest yield and NDVI data shows it had consistently lower canopy greenness across all three assessment dates. The two slowest developing varieties, Ember and Firefoxx showed significantly higher NDVI values when measured on the 2 October. There was a level of influence in phenology on yield among varieties with the fastest developing variety Rosalind yielding significantly less than all other varieties regardless of fungicide application and two of our top yielding varieties Firefoxx and Ember being among the slowest, again regardless of fungicide management (Table 6).

Table 6. Influence of Barley Variety on Phenology (Zadock's Growth Scale) and Normalised Difference Vegetation Index (NDVI) (0-1).

			Growth Stage (Zadocks)			NDVI (0-1)					
Variety		20-Jun	29-Jul	7-Aug	18-Aug	11- Jun		18-Aug		02-Oct	
1	RGT Planet	23	39	45	55	0.51	cd	0.71	ab	0.47	d
2	Neo CL	23	41	45	59	0.54	abc	0.64	c	0.48	cd
3	Minotaur	23	41	43	55	0.53	bcd	0.69	ab	0.52	b
4	Rosalind	31	49	55	59	0.46	e	0.67	bc	0.35	e
5	RGT Atlantis	23	39	41	55	0.55	ab	0.69	ab	0.50	bc
6	RP19034	23	37	39	55	0.56	a	0.71	ab	0.50	bc
7	RP21011	30	41	45	57	0.53	a-d	0.68	bc	0.50	bc
8	Ember	22	39	39	45	0.50	d	0.73	a	0.57	a
9	Firefoxx	30	37	39	51	0.55	ab	0.70	ab	0.56	a
10	Laureate	23	41	43	55	0.54	abc	0.70	ab	0.48	cd
Mean						0.525		0.691		0.492	
LSD p = 0.05						0.032		0.041		0.026	
P Value						<0.001		0.016		<0.001	

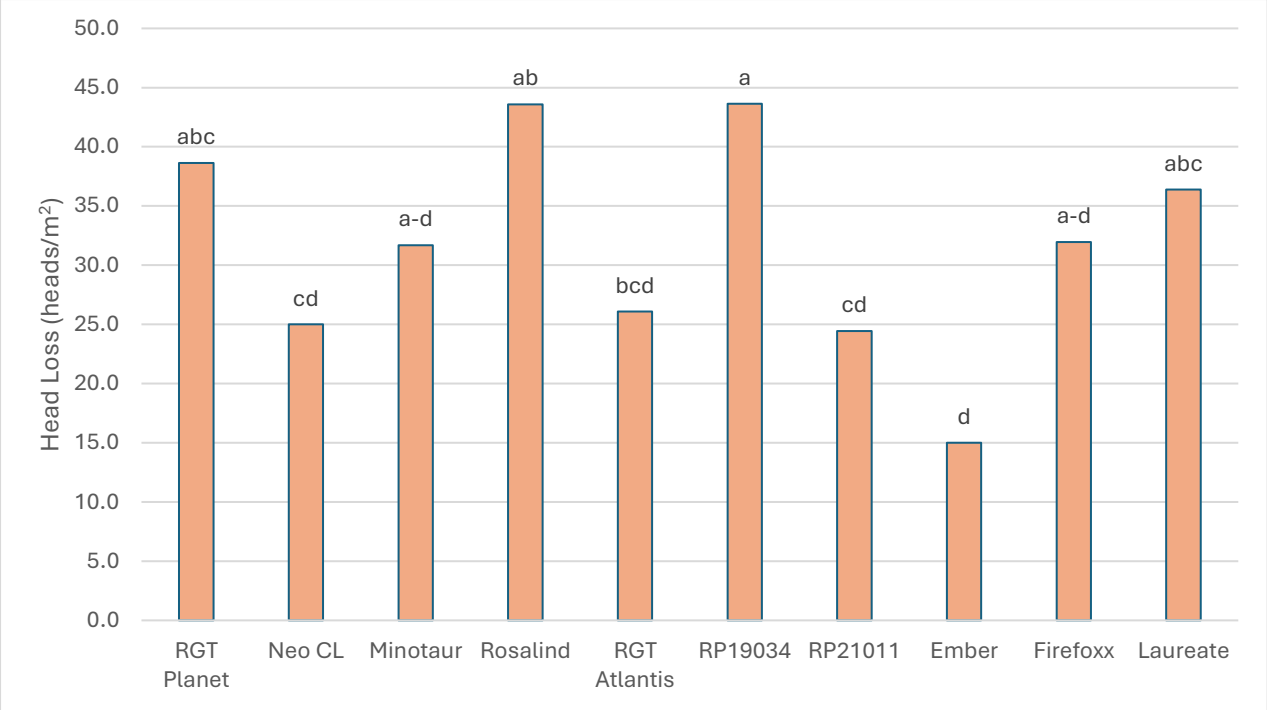

Figure 4. Influence of Barley Variety on Head Loss at Harvest (heads/m^2)

Trial Inputs

Table 7. Trial Input and Management Details.

Sowing date:		**1 May 2025**	
Harvest Date:		**26 November 2025**	
Seed Rate:		200 seeds/m^2	
Basal Fertiliser:	1 May	80 kg/ha Agflow Manganese (14.4kg P/ha and 8.48kg N/ha)	
Pre-Em Herbicide:	30 April	Paraquat 360 1.67 L/ha	
		Trifluralin 480 2 L/ha	
Post-Em Herbicide:	29 May	Mateno Complete 750 mL/ha	
Insecticide	29 May	Trojan 10 mL/ha	
Nitrogen:	3 Jul	78.2kg N/ha Urea	
	23 Jul	34.96kg N/ha Urea	
Fungicide:		**Untreated**	**Fungicide Protection***
	GS31	----	Prosaro 0.30 L/ha
	GS39	----	Aviator 0.50 L/ha

*Rosalind 2nd spray at GS49 due to developmental differences pushing spray timings into periods with very limited spray opportunities which delayed applications. Note that Aviator Xpro cannot be applied after GS45.