

Trial 3. HYC Barley G.E.M Trial Series - Time of sowing 1 (FAR VIC B22-03-1)

Objectives:

To assess the performance of winter and spring barley germplasm managed under four different management intensities (mid-April to early May sown) at two levels of fungicides.

Key points:

- There was no interaction between canopy management and variety and no significant differences between the means of any management in this trial.
- The mean yield of RGT Planet (spring barley) was significantly higher than the two winter barleys in the trial, even at the earlier time of sowing of late April.
- Mixed results were found in grain protein figures with significant differences found but little evidence to suggest it was caused by a particular nitrogen rate.
- No treatment in the trial was able to meet malt standards, especially in the winter barleys which produced particularly high protein and screenings and low test weight and retention.

Table 1. Treatment management details.

Treatment ID	Fungicide	Canopy Intervention	Kg Nitrogen
1. Standard (Std) Fungicide & no intervention (NI)	Standard (cheaper) ¹	Untreated	150
2. Standard (Std) Fungicide & PGR	Standard (cheaper) ^{1,3}	PGR	200
3. Higher input Fungicide & no intervention (NI)	Higher input ²	Untreated	150
4. Higher input Fungicide & PGR	Higher input ^{2,3}	PGR	150
5. Hyper - yield system	Higher input ^{2,3}	PGR	Extra N 225
6. Dual - purpose system*	Higher input ^{2,4}	Defoliation	Extra N 225

¹Standard Management Control – 2 x cheaper foliar fungicide propiconazole (Tilt® 250 EC at 500 mL/ha) @GS31 and tebuconazole (Folicur® 430 SC 290 mL/ha) @GS39-49.

²Increased disease management – Systiva® seed treatment, 2 x foliar fungicides including QoI (strobilurin) & SDHI combinations with DMIs with third fungicide if required.

³Plant growth regulators (PGR) (Moddus® Evo 200 mL/ha @GS30 & Moddus Evo 200 mL/ha @GS33-37).

⁴Defoliation was done mechanically (mower) prior to the GS30

Table 2. Influence of management strategy and cultivar on grain yield (t/ha).

Management	Cultivar			
	Planet	Madness	Pixel	Mean
	Yield t/ha	Yield t/ha	Yield t/ha	
1. Std & NI	5.93 -	3.82 -	4.34 -	4.70 -
2. Std & PGR	5.98 -	4.13 -	3.91 -	4.67 -
3. High & NI	6.98 -	4.83 -	4.81 -	5.54 -
4. High & PGR	7.14 -	4.67 -	5.17 -	5.66 -
5. Hyper-yield system	6.71 -	4.44 -	4.71 -	5.28 -
6. Dual-purpose system	6.68 -	3.68 -	3.83 -	4.73 -
Mean	6.57 a	4.26 b	4.46 b	
LSD Cultivar (P=0.05)		0.32	P-Value	<0.001
LSD Management (P=0.05)		ns	P-Value	0.272
LSD Cultivar x Man. (P=0.05)		ns	P-Value	0.507

Table 3. Influence of management strategy and cultivar on protein (%).

Management	Cultivar			
	Planet	Madness	Pixel	Mean
	Protein %	Protein %	Protein %	
1. Std & NI	13.6 -	14.4 -	15.7 -	14.6 c
2. Std & PGR	14.8 -	16.1 -	16.2 -	15.7 a
3. High & NI	12.7 -	13.8 -	14.2 -	13.5 d
4. High & PGR	12.6 -	14.1 -	13.7 -	13.5 d
5. Hyper-yield system	14.4 -	15.6 -	15.9 -	15.3 ab
6. Dual-purpose system	13.8 -	15.4 -	14.9 -	14.7 bc
Mean	13.6 b	14.9 a	15.1 a	
LSD Cultivar (P=0.05)	0.36	P-Value	<0.001	
LSD Management (P=0.05)	0.61	P-Value	<0.001	
LSD Cultivar x Man. (P=0.05)	ns	P-Value	0.396	

Table 4. Influence of management strategy and cultivar on test weight (kg/hL).

Management	Cultivar			
	Planet	Madness	Pixel	Mean
	Test Weight (kg/hL)	Test Weight (kg/hL)	Test Weight (kg/hL)	
1. Std & NI	56.0 -	48.4 -	36.3 -	46.9 -
2. Std & PGR	57.6 -	46.1 -	39.7 -	47.8 -
3. High & NI	59.4 -	53.4 -	43.3 -	52.0 -
4. High & PGR	59.0 -	48.5 -	46.7 -	51.4 -
5. Hyper-yield system	58.4 -	48.7 -	41.1 -	49.4 -
6. Dual-purpose system	57.9 -	44.5 -	40.8 -	47.7 -
Mean	58.1 a	48.3 b	41.3 c	
LSD Cultivar (P=0.05)	2.35	P-Value	<0.001	
LSD Management (P=0.05)	ns	P-Value	0.290	
LSD Cultivar x Man. (P=0.05)	ns	P-Value	0.344	

Table 5. Influence of management strategy and cultivar on retention (% >2.2 mm).

Management	Cultivar			
	Planet	Madness	Pixel	Mean
	Retention % >2.2 mm	Retention % >2.2 mm	Retention % >2.2 mm	
1. Std & NI	79.8 -	34.0 -	18.9 -	44.2 c
2. Std & PGR	81.9 -	28.3 -	24.9 -	45.0 bc
3. High & NI	88.4 -	50.9 -	32.5 -	57.3 a
4. High & PGR	88.7 -	44.1 -	38.4 -	57.1 a
5. Hyper-yield system	87.2 -	38.9 -	29.8 -	52.0 ab
6. Dual-purpose system	85.5 -	40.7 -	42.9 -	56.4 a
Mean	85.2 a	39.5 b	31.2 b	
LSD Cultivar (P=0.05)	4.65	P-Value	<0.001	
LSD Management (P=0.05)	7.36	P-Value	0.003	
LSD Cultivar x Man. (P=0.05)	ns	P-Value	0.236	

Table 6. Influence of management strategy and cultivar on screenings (% <2.2 mm).

Management	Cultivar			
	Planet	Madness	Pixel	Mean
	Screenings % <2.2 mm	Screenings % <2.2 mm	Screenings % <2.2 mm	
1. Std & NI	6.4 -	35.7 -	45.5 -	29.2 -
2. Std & PGR	5.6 -	40.7 -	39.7 -	28.7 -
3. High & NI	3.6 -	20.0 -	26.1 -	16.6 -
4. High & PGR	3.9 -	28.4 -	22.0 -	18.1 -
5. Hyper-yield system	4.6 -	30.4 -	34.2 -	23.1 -
6. Dual-purpose system	5.0 -	35.5 -	28.5 -	23.0 -
Mean	4.9 b	31.8 a	32.7 a	
LSD Cultivar (P=0.05)		4.75	P-Value	<0.001
LSD Management (P=0.05)		ns	P-Value	0.065
LSD Cultivar x Man. (P=0.05)		ns	P-Value	0.179

Table 7. Trial input and management details.

Sowing date:		28 April	
Harvest date:		27 December	
Plant population:		As per treatment list	
Basal fertiliser:	28 Apr	100kg MAP (10 N)	
Nitrogen:		As per treatment list	
PGR:		PGR	Untreated
	GS30	Moddus Evo 0.20 L/ha	----
	GS33	Moddus Evo 0.20 L/ha	----
Fungicide:		Standard Input	High Input
	GS00	----	Systiva
	GS31	Tilt 0.50 L/ha	Prosaro 0.30 L/ha
	GS39	Folicur 0.29 L/ha	Aviator Xpro 0.50 L/ha
	GS59	----	Opus 0.50 L/ha