

Trial 5. HYC PGR x harvest date trial - Time of sowing 1 (FAR VIC B22-05-1)

Objectives:

To assess the value of PGRs with delayed harvest in HRZ regions

Key points:

- Conducted in the winter barley variety Pixel, there was no interaction between harvest date and PGR management for grain harvest.
- There was significantly more lodging when the harvester returned 19 days after the first on-time harvest date.
- Where a split application recorded the lowest amount of lodging at the first harvest timing, it was significantly more lodged compared to the other PGR managements at harvest date 2.
- Ethephon (Promote 1000), a much more robust growth regulant when applied at the later GS37 timing, was the most successful management when used in conjunction with Moddus Evo at GS31 by reducing lodging at the second harvest date as well as crop height (Figure 1).
- In relation to brackling and head loss, although there was no interaction with PGR management, it was found that there were increased levels of both at the later harvest date.

Treatments: 4 plant growth regulator (PGR) management approaches applied to Pixel, to be harvested at two harvest dates. PGRs are applied at either 1, or 2 growth stages.

Harvest Date 1 (On time): 20 December 2022

Harvest date 2 (Delayed): 8 January 2023

Table 1. Growth stage timings and rates of plant growth regulators.

Treatment ID	GS31	GS37
Untreated	---	---
GS31 PGR	Moddus Evo 400 mL/ha	---
GS31+GS37 PGR	Moddus Evo 200 mL/ha	Moddus Evo 200 mL/ha
GS31+GS37 Euro PGR	Moddus Evo 200 mL/ha	Promote 1000 360 mL/ha

Table 2. The effect of PGRs and HD on grain yield (t/ha), lodging index (0-500), brackling (%), and head loss (heads/m²).

	Grain Yield		Lodging Index		Brackling		Head Loss	
	t/ha		0-500		%		heads/m ²	
HD 1								
Untreated	5.26	-	45.0	cd	80.0	-	3.9	-
GS31 PGR	4.49	-	47.5	cd	75.0	-	2.2	-
GS31+GS37 PGR	5.49	-	25.0	d	66.3	-	4.5	-
GS31+GS37 Euro PGR	5.15	-	45.0	cd	81.3	-	3.9	-
Mean	5.10	-	40.6	b	75.6	b	3.6	b
HD 2								
Untreated	5.07	-	175.0	b	100.0	-	24.5	-
GS31 PGR	3.91	-	202.5	b	100.0	-	12.8	-
GS31+GS37 PGR	5.06	-	255.0	a	100.0	-	14.5	-
GS31+GS37 Euro PGR	5.03	-	95.0	c	100.0	-	15.0	-
Mean	4.77	-	181.9	a	100.0	a	16.7	a
Grand Mean	4.93		111.3		87.8		10.1	
LSD (P=0.05) PGR	ns		37.1		ns		ns	
LSD (P=0.05) Harvest Date	ns		93.3		8.8		4.4	
LSD (P=0.05) PGR x HD	ns		52.4		ns		ns	
P-Value PGR	0.081		0.006		0.077		0.256	
P-Value Harvest Date	0.171		0.017		0.003		0.003	
P-Value PGR x HD	0.947		0.001		0.077		0.356	

Table 3. The effect of PGRs and HD on grain quality parameters.

	Protein		Test Weight		Retention		Screenings	
	%		Kg/hL		%		%	
HD 1								
Untreated	14.0	-	46.3	-	33.2	-	26.0	-
GS31 PGR	14.7	-	44.0	-	28.7	-	35.2	-
GS31+GS37 PGR	13.8	-	46.5	-	34.8	-	28.4	-
GS31+GS37 Euro PGR	14.4	-	43.9	-	27.8	-	34.8	-
Mean	14.2	-	45.2	b	31.1	-	31.1	-
HD 2								
Untreated	13.3	-	50.6	-	40.2	-	20.3	-
GS31 PGR	14.5	-	46.7	-	22.9	-	37.5	-
GS31+GS37 PGR	13.6	-	50.8	-	35.7	-	25.1	-
GS31+GS37 Euro PGR	13.7	-	51.7	-	40.3	-	21.7	-
Mean	13.8	-	49.9	a	34.8	-	26.2	-
Grand Mean	14.0		47.5		33.0		28.6	
LSD (P=0.05) PGR	0.6		ns		ns		8.0	
LSD (P=0.05) Harvest Date	ns		4.7		ns		ns	
LSD (P=0.05) PGR x HD	ns		ns		ns		ns	
P-Value PGR	0.009		0.169		0.059		0.018	
P-Value Harvest Date	0.209		0.049		0.466		0.280	
P-Value PGR x HD	0.603		0.435		0.159		0.275	

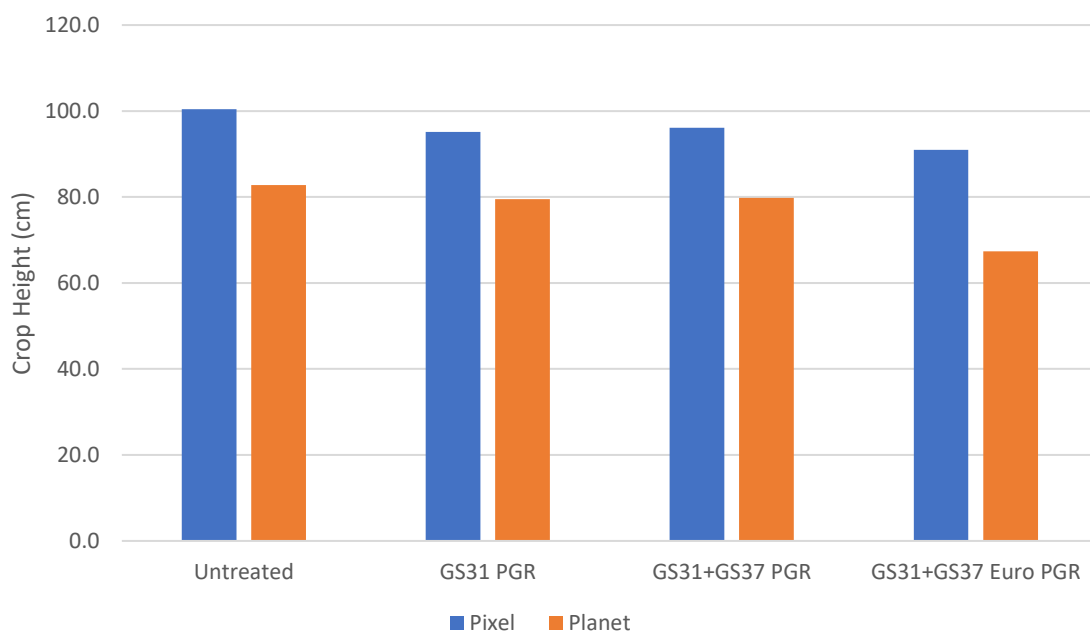


Figure 1. The impact of PGR on crop height (cm) by treatment and variety ($p>0.05$).

Table 4. Trial input and management details.

Sowing date:	28 April	
Harvest date:		20 December & 8 January
Variety:		Pixel
Plant population:		180 seeds/m ²
Seed treatment:		Systiva
Basal fertiliser:	28 April	100 kg MAP (10 N)
Nitrogen:	13 July	109 kg Urea (50 N)
	5 September	217 kg Urea (100 N)
Fungicide:	30 September	Prosaro 300 mL/ha

All inputs of insecticides and herbicides were standard across the trial