

	GS55	---	---	---	---	Opus 500ml/ha
	GS59-61	---	---	Opus 500ml/ha	---	---

Trial 5: HYC Spring Wheat “Reset” Trial

Objectives: To assess the value of pre and post GS30 defoliation in spring germplasm grown in HRZ regions of different season lengths using 21st April sowing date.

Caution: Please note aspects of carrying out defoliation post GS30 is purely experimental since it may reduce grain yield.

Key Messages:

- There were no significant differences in grain yield as result of grazing Trojan at GS30 but yield was reduced when grazing was delayed to GS32 (second node).
- There was evidence of frost in the ungrazed plots indicating that the slightly earlier flowering period in the ungrazed was not disadvantaged which can often be the case when spring wheat is sown in mid-late April.
- The delayed grazing strategy (GS32) resulted in lower grain yield and higher screenings, however there was an increase in grain protein content.
- Grazing late at GS32 resulted in an increase in grain protein and correlates to the lower yield in this treatment.

The trial was sown 21 April with standard inputs for the site. Mechanical defoliation with a mower was used to simulate the defoliation effect of grazing but no additional inputs were applied to replace the plant material removed in this experiment. The concept was to see if earlier flowering in the ungrazed plots resulted in a greater frost risk. However no differential frost effects were observed in the trial. Yields in this case illustrating no effect of defoliation at GS30 but lower yields when defoliation was delayed until GS32.

Table 1. Influence of grazing strategy and cultivar on grain yield (t/ha).

“Grazing” timing					
	Ungrazed	Grazed GS30 6 July	Grazed GS32 17 August	Mean	
Cultivar	Yield t/ha	Yield t/ha	Yield t/ha		
Trojan (Spring)	7.28 a	7.13 a	6.20 b	6.87	
LSD p = 0.05	0.79		P val	0.03	

Table 2. Influence of grazing strategy and cultivar on protein (%).

Grazing timing					
	Ungrazed	Grazed GS30 6 July	Grazed GS32 17 August	Mean	
Cultivar	Protein %	Protein %	Protein %		
Trojan (Spring)	13.7 b	13.4 b	14.5 a	13.9	
LSD p = 0.05	0.7		P val	0.026	

Table 3. Influence of grazing strategy and cultivar on screenings (%).

Grazing timing					
	Ungrazed	Grazed GS30 6 July	Grazed GS32 17 August	Mean	
Cultivar	Screenings %	Screenings %	Screenings %		
Trojan (Spring)	1.5 b	1.8 b	3 a	2.1	
LSD p = 0.05		0.5	P val	<0.001	

Trial 6: HYC Nutrition for Hyper Yielding Wheat

Objectives: To assess the value of higher nutrition input (N, P, K & S) for wheat in the growing season (cv RGT Accroc).

Individual objectives specific to the trials were:

- To assess the value of additional nutrients in the growing crop (set up as small plots at the Research Centre) .
- To assess the value of adding increased P, K, and S when targeting higher yield potential rather than N alone.

Key Messages:

- Nutrition treatments had no effect on harvest dry matter, grain yield, test weight or screenings.
- Based on the grain protein and yield of the unfertilised plots which received 100kg/ha MAP (10N), the unfertilised plots removed 225kg N/ha from the soil for the N present in the grain.
- If it is assumed that 75% of the N in the canopy resides in the grain with 25% in the straw and chaff, then it is assumed the crop removed 299kg N/ha from the soil to grow the crop.
- The trial indicated that additional N, P and K applied in this trial did not increase yield with a trend (not significant) for N application to reduce grain yield and harvest dry matter.
- With grain protein at 12.5% in the unfertilised plots there was a significant increase in protein when 150 – 240N was applied.
- Although not significant, the 0N and 120N treatments were the only treatments to achieve grain yield >10 t/ha.

Table 1. The effect of crop nutrition on harvest dry matter (t/ha), yield (t/ha), and grain quality.

Nutrition treatment (kg)	Harvest Dry Matter (t/ha)	Yield (t/ha)	Protein (%)	Test Weight (kg/hL)	Screenings (%)
0N	17.8 -	10.26 -	12.5 d	79.2 -	1.7 -
120N	16.9 -	10.01 -	12.5 cd	78.8 -	1.8 -
150N	16.8 -	9.97 -	13.0 ab	78.9 -	1.6 -
150N + 20.8P + 37.35K + 41.59S	18.0 -	9.51 -	12.7 bcd	78.5 -	2.1 -
180N	17.7 -	9.91 -	13.2 a	79.4 -	1.5 -
180N + 31.76P + 52.71K + 61.73S	15.7 -	9.13 -	12.7 bcd	77.4 -	2.3 -
240N	15.7 -	8.95 -	12.9 abc	77.4 -	2.8 -
Mean	16.9	9.68	12.8	78.5	2.0
LSD p = 0.05	3.4	1.01	0.4	2.0	1.4
P val	ns	ns	0.017	ns	ns
CV	13.4	7.00	2.2	1.8	47.6