

“Plant Growth Regulator Trial 2012”

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Key Outcomes:

- There was no significant effect on yield by applying Plant Growth Regulators in this trial
- Application timing (at GS 30 or GS 31) had no significant effect on yield

Trial Objectives: To determine if the application of plant growth regulators (PGRs) have an effect on grain yield

Trial Duration: 2012

Location: Navan

Farmer Co-operators: Pat & Mary Connell

Soil Type: Black Cracking Clay

Paddock History: 2010 Wheat
2011 Oats Hay

Monthly Rainfall:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
18	11	55	16	42.5	76.5	38	46.5	29	21.5	4.5	10

Yield Limiting Factors: Dry Spring

Type of Trial: Replicated small plot trial

Trial Design: Randomised Complete Block Design

Treatments:

The PGR trial consisted of the following treatments:

- 1) Nil
- 2) Chlormequat 500 ml/ha @ GS30
- 3) Moddus 200 ml/ha @ GS30
- 4) Chlormequat 500 ml/ha + Moddus 100ml
- 5) Chlormequat 1000 ml/ha + Moddus 200ml
- 6) Chlormequat 500 ml/ha + Moddus 100ml @ GS31

All plots were sown with Orion wheat at 300 seeds/m² with 80 kg/ha triple superphosphate. Nitrogen (110 kg/ha N applied) was supplied in the form of urea. All plots were harvested using a small plot harvester.

Results:

The yields of the trial can be seen in **Table 1** below

Table 1: Yields of Orion wheat vs. PGR treatment, MNHRZ 2012

Treatment	Yield (kg/ha)
Nil	5777.3
C 500 @ GS30	6060.4
M 200 @ GS30	6376.3
C 500 + M100 @ GS30	5983.7
C 1000 + M200 @ GS30	6023.7
C 500 + M100 @ GS 31	6436.1
LSD (P=0.05)	N.S.

C – Chlormequat, M - Moddus

Comments:

There were no significant effects on grain yield by applying PGRs to Orion wheat in this trial. This result was similar to those achieved in other MNHRZ PGR trials over the last 3 seasons. There is a strong possibility that responsiveness was due to the absence of lodging in each of these trials. Modern varieties are efficient at producing grain and have excellent harvest indexes in the absence of PGR application. This is partially due to the effect of the *rht* (reduced height) genes on crop height and lodging potential. The *rht* genes reduce the sensitivity of cereals to gibberillic acid (GA), the compound that makes plants grow upwards towards the light. Plant growth regulators used in this trial suppress the formation of GA, hence there may be limited impact due to the presence of a range of *rht* genes.

PGR use can have other beneficial impacts that are more difficult to quantify and include:

- 1) Easier, more efficient harvest due to reduced dry matter
- 2) More erect residual stubble. Potentially easier to sow into with disc/tyne machines
- 3) Reduced head loss in certain barley varieties
- 4) Better quality hay associated with reducing the ADF % and increasing WSC %

We have also noticed some negative impacts over the course of trialling these products. These have included reduced competitiveness with ryegrass and crop “burning” of leaves following application in certain varieties.

Acknowledgements

Pat & Mary Connell for the use of their land for the trials

Peter Telfer, SARDI for harvesting the trials

Agrilink Agricultural Consultants for conducting the trial