

10.2 BARLEY GROWTH REGULATOR TRIAL - LAKE BOLAC

Location: SFS site Lake Bolac

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Background:

The lodging of barley continues to be a significant harvesting, and yield loss issue. In the UK and New Zealand growth regulators are widely used to prevent lodging.

Currently Cycocel® is the only growth regulator used in this trial that is commercially available in Australia. However there is no registration for Cycocel® on barley (only wheat). The current cost for cycocel® @ 1 L/ha is \$15/ha. Cycocel's active constituent is 582 g/L Chlormequat present as Chlormequat Chloride. Other products are also available for use as growth regulators. Caramba's active constituent is Metconazole. It is registered for use as a fungicide overseas. Experience also suggests that it works well as a plant growth regulator. Terpal's active constituent is 305 g/L Mepiquat chlormequat and 155 g/L Ethephon. Terpal® is registered for use in New Zealand to prevent or suppress early lodging of barley, wheat, triticale and rye by shortening and stiffening the straw and reducing the length of internodes.

Table 77: Barley Growth Regulator Trial Results

Treatment	Yield t/ha	Protein %	Retention	Screenings
Control	4.64	13.2	51.6	12.9
Terpal®	4.51	13.7	42.6	16.3
Caramba®	5.75	13.4	69.4	7.0
Cycocel® @ 500 ml/ha	4.85	12.9	49.0	13.5
Cycocel® @ 1 Lt/ha	4.85	12.9	57.5	10.2
LSD 5%	0.336	1.23		9.87

Comments:

The trial was not treated with fungicides at any stage, and it did suffer from reasonable levels of both scald and leaf rust that were patchy with significant hotspots across the trial. The crop height at harvest was the same for all treatments including the control, and none of the treatments lodged. The Caramba® treatment produced significantly higher yield, higher retention and lower screenings than all other treatments including the control. I believe this is due to the fungicide effect of the Caramba controlling the level of disease compared to the higher infection levels of disease on the other treatments.

Aim:

To assess the effect of a number of different growth regulators over a range of rates and timings on crop height and lodging in barley. To evaluate the effect of growth regulators on grain yield and protein.

Trial design:

Fully randomised and replicated (3 reps) trial

Crop: Barley var. Gairdner

Sowing Date: 15th May 2003

Sowing Rate: 100 kg/ha

Fertiliser: 125 kg/ha Pivot 13.16.0.7

Growth Regulator application:

1st application GS31 (1/9/03)

2nd application GS40 (30/9/03)

Treatment List

Control

Terpal® @ 1500 ml/ha @ Flat leaf emergence

Caramba® @ 1200 ml/ha @ Flag leaf emergence

Cycocel® @ 500 ml/ha + BS1000 wetter
@ 0.1% @ the first node stage

Cycocel® @ 1000 ml/ha + BS1000 wetter
@ 0.1% @ the first node stage

The control, and both Cycocel® treatments produced very similar results, and there appears to be no major difference between any of these treatments. The Terpal® treatment had a slightly lower yield, lower retention and much higher screenings than the control and Cycocel® treatments, however this may be due to disease hotspots in these treatments. I believe the use of growth regulators in barley still requires more work to confirm product selection, rates and timings for Australian conditions. More work is also required to determine if we require growth regulators every year or only when the fertility and seasonal conditions allow for maximum crop growth.