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AGRONOMY + RESEARCH



SYNGENTA NEW BARLEY VARIETY COMPARISON TRIAL

Rankins Springs, 2015

SYNGENTA IMI TOLERANT BARLEY

KEY POINTS

- The IMI tolerant barley variety Spartacus CL (IGB 1334) proved to be a solid performer in this trial, with yields better than Scope CL and equal to LaTrobe and Hindmarsh.
- Early crop phytotoxicity and vigour for the Intervix® treated plots were slightly higher for Spartacus than for Scope CL, although both still commercially acceptable.
- Yield of Spartacus CL was 4% less where it was treated with Intervix® compared to the untreated plots.
- Spartacus CL is a variety that appears to be well suited to the area. It is a shorter variety, with greater standability than other varieties making it a perfect fit for both irrigated and no till dryland farming systems in the region.

BACKGROUND

Come sowing time, growers are often concerned about the potential effects of herbicide residues in the soil. Rainfall in spring and summer, following herbicide application and prior to sowing the following crop, plays a major role in herbicide breakdown. When rainfall prior to sowing is below average there is a high risk of herbicide carryover in the soil, potentially impacting on variety and crop choice the following year.

Intervix® is a Clearfield® (imidazolinone) herbicide. It is used for the early post-emergence control of some of the hard to kill annual grass and broadleaf weeds such as brome and barley grass, and is part of the Clearfield® Production System, which includes the Clearfield® tolerant barley variety Scope CL®.

Clearfield® tolerant varieties are valuable tools for growers as it gives them the flexibility to sow into high risk residue paddocks, not disrupting planned crop rotations and minimising the effects of herbicide carryover.

New imidazolinone (IMI) tolerant barley varieties being trialled by Syngenta will provide even more options for growers to consider in their crop planning phase.

TRIAL DETAILS

A barley variety trial was established 25km NE of Griffith NSW at Michael Pfitzner's "Hill End" property, in conjunction with Syngenta.

The trial aimed to:

1. Evaluate the agronomic performance and yield of Syngenta's new Barley lines
2. Evaluate the crop safety of Intervix® when applied on the new IMI tolerant barley variety Spartacus CL.

The trial was situated on a paddock that was previously a fallow. It was sown on the 5th May, 2015 at 30kg/ha with 60kg/ha MAP. Necessary weed control was undertaken pre-emergence and again in early July. It was also topdressed with 85kg/ha urea early August and received two fungicide applications, the first early July and the second early September.

The growing season rainfall was 311mm. It was harvested on 17th November, 2015.

The trial consisted of six treatments, as shown in table 1. Two of the varieties were IMI tolerant barley varieties and were sprayed on the 20th June with Intervix®. The crop was around Z25 when it was sprayed, figure 1. It was replicated five times, with plot sizes 1.75 x 12m.

Establishment counts, crop vigour reduction, crop phytotoxicity, grain yield and grain quality were all measured/assessed in this trial and are summarised in the results section.

Table 1: Barley varieties and additional treatments used in the trial.

Variety	Additional Treatment	Timing	Treatment Identification
1. Hindmarsh	Nil	-	Hindmarsh 0
2. Latrobe	Nil	-	Latrobe 0
3. Spartacus CL	Nil	-	Spartacus CL 0
4. Spartacus CL	Intervix 700ml/ha + Hasten 1%	4 leaf	Spartacus CL 1
5. Scope CL	Nil	-	Scope CL 0
6. Scope CL	Intervix 700ml/ha + Hasten 1%	4 Leaf	Scope CL 1

PRODUCTS:	Active Ingredient	Formulation Concentration
Hasten	Ethyl & Methyl esters of canola oil + non-ionic surfactants	704 + 196 g/L
Intervix	33g/L Imazamox & 15g/L Imazapyr	48 g/L

Figure 1: Growth stage of Spartacus CL (left) and Scope CL® (right) when sprayed with Intervix® on 20th June.



RESULTS AND DISCUSSION

A picture of each of the 6 varieties/treatments is shown in figures 4 to 9.

Crop Establishment:

Plant counts and establishment scores were taken early June. The trial established well. Establishment was scored from 0 to 9, with 0 being very poorly established and uneven and 9 being every evenly established. Establishment scores for the trial ranged from 7 to 9.

Plant counts were also taken and were statistically analysed, figure 2. They ranged from 73 plants/m² for Scope CL® up to 96 plants/m² for Latrobe.

Crop vigour reduction (%) & Crop phytotoxicity (%):

These were recorded at 2 timings, approximately 28 days after application (28 DAA) and approximately 56 DAA.

Crop vigour reduction was recorded as a percentage in comparison to the untreated control (where untreated control equals 0% reduction).

Crop phytotoxicity was a subjective assessment of the level of leaf chlorosis and/or necrosis compared to the untreated control, with phytotoxicity greater than 15% considered a commercially unacceptable level of crop injury.

First Assessment 28DAA:

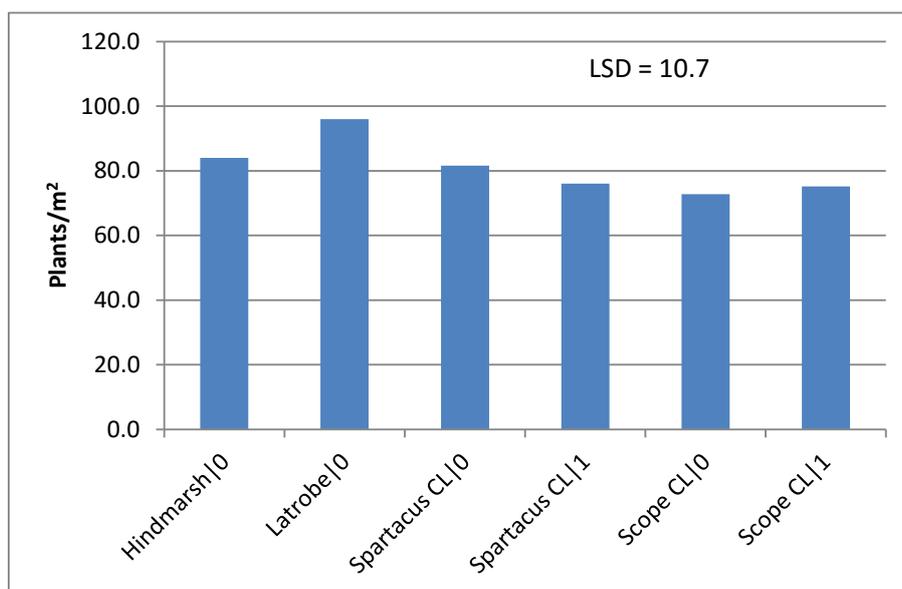
The first assessment was carried out on the 31st July. The only treatment to show any crop vigour reduction was Spartacus CL sprayed with Intervix®, with an average of 2% vigour reduction.

Spartacus CL sprayed with Intervix® also had slightly more crop phytotoxicity than Scope CL® sprayed with Intervix®, with both treatments showing less than 2% phytotoxicity and therefore well below levels that are considered commercially unacceptable.

Second Assessment 56DAA:

The second assessment was carried out on the 18th August. There was not a lot of difference between the Intervix® sprayed and unsprayed plots for the 2 clearfield varieties. There was only some slight crop vigour reduction, less than 2% for both treatments, but no crop phytotoxicity was evident.

Figure 2: Average plant populations, taken 10th June, 2015, LSD 10.7 plants/m².



Grain Yield and Quality:

Grain yield was statistically analysed. Grain quality was not statistically analysed.

Grain Yield:

The average grain yield of the trial was 5.99 t/ha.

Yields ranged from 4.98 t/ha for the variety Scope CL treated with the herbicide, Intervix® up to 6.61 t/ha for the variety Hindmarsh, figure 3.

The addition of the herbicide Intervix® to the IMI variety Spartacus CL did not significantly affect yield, yielding 6.65 t/ha without the addition of Intervix® and 6.27 t/ha with the addition of Intervix®.

Whilst yield of the IMI tolerant variety Scope CL was significantly lower than all other varieties in the trial, the same pattern applied, yielding 5.01 t/ha without the addition of Intervix® and 4.98 t/ha when Intervix® was applied.

Grain Quality:

The average grain protein of the trial was 11.96%.

Grain protein ranged from 11.06% for the variety Latrobe up to 12.14% for the variety Scope CL without any herbicide applied.

Figure 3: Grain Yield from the trial, LSD 344 kg/ha.

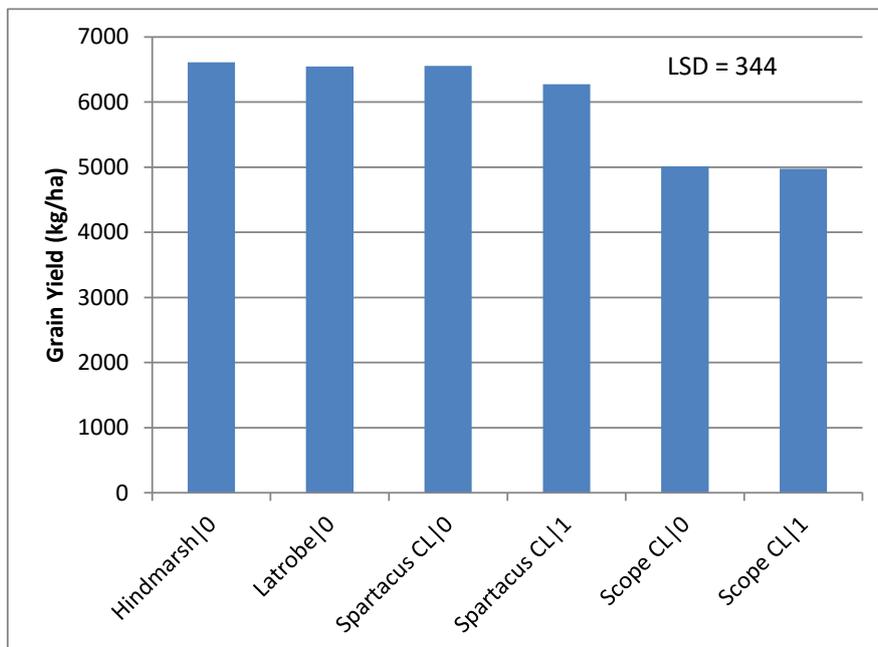


Figure 4: Treatment 1 - Hindmarsh Barley, taken 21st July and 19th August, 2015



Figure 5: Treatment 2 - Latrobe Barley, taken 21st July and 19th August, 2015



Figure 6: Treatment 3 - Spartacus CL Barley, taken 21st July and 19th August, 2015



Figure 7: Treatment 4 - Spartacus CL Barley plus Intervix®, taken 21st July and 19th August, 2015



Figure 8: Treatment 5 - Scope CL® Barley, taken 21st July and 19th August, 2015



Figure 9: Treatment 6 - Scope CL® Barley plus Intervix®, taken 21st July and 19th August, 2015



ACKNOWLEDGEMENTS

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