

SAKURA[®] 850WG, compared to commercial standards for the pre-emergent control of Barley Grass (*Hordeum leporinum*) in Wheat

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Aim

To demonstrate the crop safety and efficacy of Sakura 850WG pre-emergent herbicide on barley grass (*Hordeum leporinum*) in wheat compared to commercially available herbicides.

Background

Bayer CropScience is planning to launch Sakura 850WG containing the new active ingredient pyroxasulfone in time for the 2012 season. Sakura 850WG's mode of action is an inhibitor of Very Long Chained Fatty Acid biosynthesis and is likely to be classed as a Group K herbicide. It works through both root and shoot uptake and has been submitted for registration for the pre-emergent control of annual ryegrass, barley grass, phalaris, silver grass and toad rush in wheat, barley and triticale. Sakura 850WG is a pre-emergent herbicide that can be applied up to 14 days prior to sowing with knife points and press wheels or knife points and harrows. It works best when incorporated by sowing (IBS). Sakura 850WG is to be applied at 118 g/ha and is compatible with a range of other knockdown and pre-emergent products.

Trial Details

Property	McIlroy's property, Pithara
Plot Size & Replication	5m x 18m x 3 replicates
Soil Type	Clay
Soil Condition	40% average ground cover, barley grass seed, stubble and ash. Some patches up to 95% ash & seed cover
Application date	29/5/10
Water Rate	80 L/ha
Ground Speed	9.2 kph applied by quad bike
Nozzle Type	DG11002 (Yellow Drift Guard 02's)
Sowing Date	29/5/10
Time to Incorporation	6 hours
Seeding Equipment	Knife point & press wheels
Seeding Rate	80 kg/ha
Row Spacing	8 inch
Seeding Speed	8 kph
Seeding Depth	3cm
Fertiliser (kg/ha)	29/5/10 110 kg/ha Agras [®] & 28/7/10 50L/ha Flexi N [®]
Herbicides, Insecticides & Fungicides	25/5/10: 5 L/ha Sprayseed [®] , 29/5/10: 3 L/ha Sprayseed [®] , 500 mL/ha Lorsban [®]
Paddock Rotation	08 Pasture, 09 Wheat
Growing Season Rainfall	180mm

Site Comments

This site received two applications of Sprayseed[®] due to 1 leaf emerging barley grass across the site. The trial treatments were applied to moist soil on the 29/5/10. The trial was sown by the grower later that afternoon with knife point and press wheels on 8 inch row spacing. After sowing, there were lots of large clods across the site.

A site inspection on the 17/6/10 observed crop and weeds only just beginning to emerge with cloddy and dry top soil.

On the 19/7/10 crop emergence was still patchy through the site with high numbers of blue oat mite observed particularly in the last few plots of replicate 1 and into the plot 302. These were sprayed out by the grower on the 21/7/10. Weed emergence was also patchy with an accurate assessment not possible due to variability.

Rainfall

There was a 50mm summer rainfall event over two days on the 22/3/10 – 23/3/10. A total of approximately 180mm of rainfall was recorded at the site from the start of May to the end of November. 150mm of rainfall was recorded on the site from the application of the treatments to harvest, with the last significant rainfall event of 60mm over two days to the 1st September.

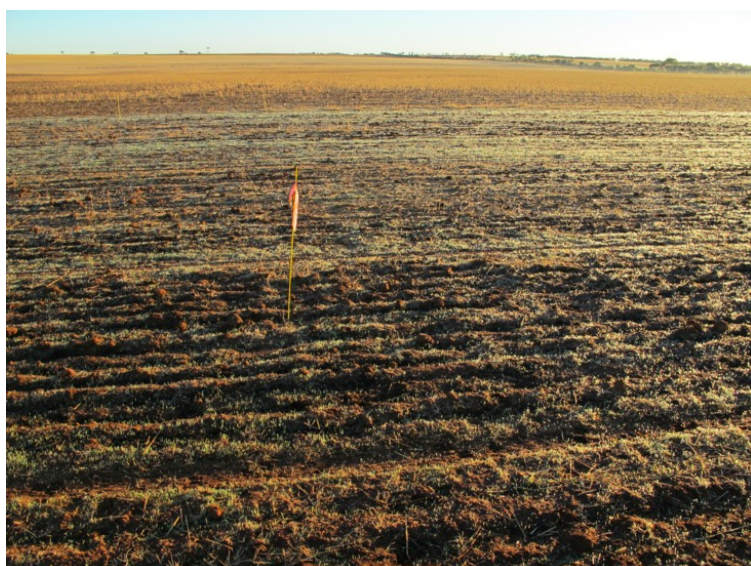


Figure 1: Site at application 29/5/10

Results

Table 1: Crop safety and yield (t/ha) from Bonnie Rock wheat.

		Assessment Date	17/6/10	16/8/10	16/8/10	29/9/10	10/11/10		10/11/10
		Appl.-Ass. Interval	19 DAA	79 DAA	79 DAA	123 DAA	161 DAA		161 DAA
		Rating Type	Rating	Rating	Rating	Rating	Harvest		Harvest
		Rating Scale	%	%	%	%	t/ha		%
N o	Treatment	Rate /ha	Discolour	Discolour	Biomass Reduction	Biomass	Yield		% Untreated
1	UNTREATED		0	0	0	78	0.97	a	100
2	SAKURA 850 WG	118 g/ha	0	0	10	100	1.18	a	117
3	*PRODUCT X	X L/ha	0	0	10	87	1.13	a	111
4	SAKURA 850 WG *DIURON 900 WG	118 g/ha 300 g/ha	0	0	22	95	1.07	a	123
5	TRIFLURX [®] AVADEX XTRA [®]	1.5 L/ha 1.6 L/ha	0	0	13	80	1.24	a	128

Yields t/ha followed by the same letter do not significantly differ (P= 0.05, Duncan's New MRT).

Crop Safety

All treatments were safe to the crop. Biomass reduction ratings at 79 DAA were in relation to untreated plot 101 that had the highest biomass across the site and was mainly due to BOM damage and lower weed numbers. At 123 DAA the increased Biomass from Sakura® treatments did not translate to yield with a lack of finishing rain.

Yield

Barley grass had mostly senesced at the 29/9/10 and was not using much water so a lower crop biomass may have been an advantage to grain fill. The grower also applied too much nitrogen for the seasonal conditions which lifted the crop biomass but without a finishing rain, overall grain fill and yield was below expectation. All treatments recorded higher yields than the untreated although none were significant ($P \leq 5\%$). Late differences in barley grass control did not greatly influence end yield due to warm dry conditions throughout spring.

Table 2: Grain quality analysis and gross return (\$/ha) from Bonnie Rock wheat.

No	Treatment	Rate /ha	Protein (%)	Moisture (%)	Hectolitre (kg/hl)	Screenings (%)	Grade	Yield t/ha	Gross return \$/ha
1	UNTREATED		12.1	10.8	76.7	2.8	H2	0.97	\$374.59
2	SAKURA 850 WG	118 g/ha	12.4	10.8	76.0	3.1	H2	1.18	\$457.84
3	*PRODUCT X	X L/ha	12.6	10.9	76.7	3.1	H2	1.13	\$438.44
4	SAKURA 850 WG *DIURON 900 WG	118 g/ha 300 g/ha	12.7	10.8	75.9	3.1	H2	1.07	\$413.95
5	TRIFLURX AVADEX XTRA	1.5 L/ha 1.6 L/ha	12.3	10.8	77.5	2.3	H2	1.24	\$479.61

*Based on Grain Trade Association wheat receival standards 2010-11.

Pricing based on AWB contract pricing delivered to Fremantle port zone, H2 = \$388, 9/12/2010

All treatments regardless of seeding system met the receival standards for Australian Hard Varieties (H2).

Table 3: Weed Control – Barley grass (*Hordeum leporinum*).

		Assessment Date	16/8/10	29/9/10
		Appl.-Ass. Interval	79 DAA	123 DAA
		Rating Type	Rating	Rating
		Rating Scale	%	%
No	Treatment	Rate /ha	Control	Control
1	UNTREATED		0	0
2	SAKURA 850 WG	118 g/ha	75	83
3	*PRODUCT X	X L/ha	53	45
4	SAKURA 850 WG *DIURON 900 WG	118 g/ha 300 g/ha	80	84
5	TRIFLURX AVADEX XTRA	1.5 L/ha 1.6 L/ha	52	32

Barley Grass Control

The lack of a rainfall event in excess of 10mm until the 8th July did not favour the redistribution of Sakura® back into the cropping row or off stubble. The majority of barley grass in the Sakura® plots was in patches of high ash or large clods and on the edge of the furrow where nil herbicide was located.

An early weed assessment was not possible due to low and variable emergence of barley grass across the site due to the dry conditions.

Sakura® treatments recorded the best control of barley grass at 79 DAA.

Following the 60mm rainfall event on the 1st September, good activity with an improvement in control was recorded from the Sakura® treatments at 123 DAA with ideal conditions for root uptake with moist soil conditions for several weeks. At this final assessment the Product X and TriflurX + Avadex treatments did not record any improvement in activity with no reduction in biomass or emergence of late weeds observed.



Figure 3: 16/8/10 - Sakura[®] 118 g/ha symptoms of root activity on barley grass.

Comments

At the time of publication Sakura 850WG is not registered. An application for the registration of Sakura 850WG has been made.

Sakura[®] is a Registered Trademark used under license by Bayer CropScience.

Product X is not registered for the control of barley grass in cereals.

* Diuron 300 g/ha used pre-plant is not a registered label rate of Diuron.

Paper reviewed by Greg Skinner – Technical advisory manager, Bayer CropScience

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