

# TOPIC: PRE-EMERGENT CONTROL OF BROME GRASS IN WHEAT

Group: Yuna  
2010

## AIM

1. To evaluate and compare the weed control and yield of Sakura with commercial standards.
2. To demonstrate efficacy & crop safety of Sakura when sown with grower's machinery.

## TRIAL DETAILS

### BACKGROUND SUMMARY

|                   |                                                                                                                                            |                                                 |         |              |                           |                       |                       |  |  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------|--------------|---------------------------|-----------------------|-----------------------|--|--|
|                   |                                                                                                                                            |                                                 |         |              |                           |                       |                       |  |  |
| Property          | Balla - Whelara Rd, Yuna                                                                                                                   |                                                 |         |              |                           |                       |                       |  |  |
| Soil type         | Loamy Sand                                                                                                                                 | Soil Test Results   pH 6.2 (CaCl <sub>2</sub> ) |         |              |                           |                       |                       |  |  |
| Crop & Variety    | Wyalkatchem wheat                                                                                                                          |                                                 |         |              |                           |                       |                       |  |  |
| Plot size         | 5 m x 24 m (3 replicates)                                                                                                                  |                                                 |         |              |                           |                       |                       |  |  |
| Spray date        | 1/6/2010                                                                                                                                   | Water rate                                      | 80 L/ha | Ground Speed | 9.2 kph                   | Nozzle Type/ Pressure | Drift Guard 02/ 2 bar |  |  |
| Knockdown ap-     | 31/5/10                                                                                                                                    | 1.5 L/ha Roundup PowerMax                       |         |              | 1/6/10 2.5 L/ha Sprayseed |                       |                       |  |  |
| Ground cover      | 95% ground cover 0-5cm residue. 5% 5-15cm RG stubble<br>RG 200+/- m <sup>2</sup> (1 leaf - tillering), WR 0-10/m <sup>2</sup> (2 – 8 leaf) |                                                 |         |              |                           |                       |                       |  |  |
| Seeding rates and | 90 kg/ha, 3/6/10                                                                                                                           |                                                 |         |              |                           |                       |                       |  |  |
| Fertiliser        | 1/6/10 Agstar 80 kg/ha top dressed                                                                                                         |                                                 |         |              |                           |                       |                       |  |  |
| Post-emergent     | 14/7/10 1 L/ha Velocity + 1% v/v Hasten                                                                                                    |                                                 |         |              |                           |                       |                       |  |  |

- Bayer CropScience plans to launch Sakura 850WG with the new active ingredient pyroxasulfone for the 2012\* season.
- Sakura 850WG's mode of action is likely to be classed as a Group K herbicide.
- Sakura 850WG works through both root and shoot uptake.
- Sakura 850WG 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. Sakura 850WG 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.

## RESULTS

### Crop Effects and yield (t/ha) in Wyalkatchem wheat.

|     |                           | Assessment Date      | 23/06/10  | 23/06/10          | 6/07/10   | 6/07/10           | 21/07/10          | 15/09/10       | 4/11/10 | 4/11/10      |
|-----|---------------------------|----------------------|-----------|-------------------|-----------|-------------------|-------------------|----------------|---------|--------------|
|     |                           | Appl.-Ass. Interval  | 22 DAA    | 22 DAA            | 35 DAA    | 35 DAA            | 50 DAA            | 106 DAA        | 156 DAA | 156 DAA      |
|     |                           | Rating Type          | Rating    | Rating            | Rating    | Rating            | Rating            | Rating         | Harvest | Harvest      |
|     |                           | Rating Scale         | %         | %                 | %         | %                 | %                 | %              | t/ha    | %            |
| N o | Treatment                 | Rate/ ha             | Phytotox. | Biomass Reduction | Phytotox. | Biomass Reduction | Biomass Reduction | Biomass rating | Yield   | % un-treated |
| 1   | UNTREATED                 |                      | 0         | 0                 | 0         | 0                 | 0                 | 90             | 2.04 b  | 100          |
| 2   | SAKURA 850 WG             | 118 g/ha             | 0         | 2                 | 0         | 5                 | 0                 | 100            | 2.30 ab | 113          |
| 3   | SAKURA 850 WG SENCOR      | 118 g/ha<br>150 g/ha | 15        | 13                | 0         | 20                | 22                | 93             | 2.23 ab | 109          |
| 4   | SAKURA 850 WG AVADEX XTRA | 118 g/ha<br>1.6 L/ha | 0         | 0                 | 0         | 2                 | 0                 | 98             | 2.34 a  | 115          |
| 5   | TRIFLURX                  | 2 L/ha               | 0         | 5                 | 0         | 8                 | 0                 | 93             | 2.17 ab | 107          |
| 6   | TRIFLURX AVADEX XTRA      | 1.5 L/ha<br>1.6 L/ha | 0         | 3                 | 0         | 8                 | 0                 | 93             | 2.21 ab | 108          |
| 7   | PRODUCT X                 | 2.5 L/ha             | 0         | 3                 | 0         | 8                 | 0                 | 93             | 2.15 ab | 105          |

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

All treatments were safe to the crop except for Sakura 118 g/ha + Sencor 150 g/ha which resulted in biomass reduction at all assessments. This was in part due to a couple of rows being sown into the inter row that contained herbicide which resulted in the death of some plants. This mixture would not be recommended on conventional wheat. An overall crop biomass rating was taken 106 DAA rated Sakura 118 g/ha as 100% with the other treatments benchmarked against it. The crop was water stressed at this time. Inspection of the crop heads found they were not filling to potential with small grain and empty husks common across the trial.

#### YIELD

Sakura + Avadex recorded the highest level of brome grass control in this trial and the highest yield of 2.34 t/ha. All 3 Sakura treatments out yielded the commercial standards TriflurX, TriflurX + Avadex and Boxer Gold.

**Grower yield:** from the paddock surrounding the trial was 1.2 – 1.5 t/ha. Pre-em = 1.5 L/ha Trifluralin 480, Post-em = 330 mL/ha Atlantis OD + 400 mL/ha MCPA LVE + 1% Hasten.

#### Grain Quality Analysis:

| N<br>o | Treatment                    | Rate/ ha             | Protein<br>% | Moisture<br>% | Hectolitre<br>kg/L | Screenings<br>% | Average<br>Yield t/<br>ha | Grade | Gross<br>Return<br>\$/ha |
|--------|------------------------------|----------------------|--------------|---------------|--------------------|-----------------|---------------------------|-------|--------------------------|
| 1      | UNTREATED                    |                      | 12.1         | 7.9           | 74.5               | 13.6            | 2.04                      | FED1  | 536.84                   |
| 2      | SAKURA 850 WG                | 118 g/ha             | 11.9         | 7.8           | 75.5               | 12.3            | 2.30                      | FED1  | 605.70                   |
| 3      | SAKURA 850 WG<br>SENCOR      | 118 g/ha<br>150 g/ha | 11.7         | 7.8           | 74.6               | 14.1            | 2.23                      | FED1  | 585.60                   |
| 4      | SAKURA 850 WG<br>AVADEX XTRA | 118 g/ha<br>1.6 L/ha | 11.6         | 7.9           | 75.2               | 13.3            | 2.34                      | FED1  | 615.99                   |
| 5      | TRIFLURX                     | 2 L/ha               | 11.4         | 7.9           | 74.9               | 12.3            | 2.17                      | FED1  | 571.50                   |
| 6      | TRIFLURX<br>AVADEX XTRA      | 1.5 L/ha<br>1.6 L/ha | 12.0         | 7.8           | 74.1               | 14.9            | 2.21                      | FED1  | 580.11                   |
| 7      | PRODUCT X                    | 2.5 L/ha             | 12.0         | 7.8           | 74.6               | 13.8            | 2.15                      | FED1  | 565.54                   |

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

Pricing based on AWB contract pricing delivered to Geraldton port zone, FED1 = \$263, 9/12/2010

Due to excessive screenings  $\geq 10\%$  all treatments were unable to be graded at a higher grade (AGP1 or better) and therefore went Feed. The high level of screenings reflects the dry hot finish to the season.

#### Weed Control – Brome grass (Great) (*Bromus diandrus*)

|    |                              |                      |                        |          |         |          | + Atlantis OD<br>330 mL/ha |
|----|------------------------------|----------------------|------------------------|----------|---------|----------|----------------------------|
|    |                              |                      | Assessment<br>Date     | 23/06/10 | 6/07/10 | 21/07/10 | 15/09/10                   |
|    |                              |                      | Appl.-Ass.<br>Interval | 22 DAA   | 35 DAA  | 50 DAA   | 106 DAA                    |
|    |                              |                      | Rating Type            | Rating   | Rating  | Rating   | Rating                     |
|    |                              |                      | Rating Scale           | %        | %       | %        | %                          |
| No | Treatment                    | Rate/ ha             | Control                | Control  | Control | Control  | Control                    |
| 1  | UNTREATED                    |                      | 0                      | 0        | 0       | 0        | 73                         |
| 2  | SAKURA 850 WG                | 118 g/ha             | 65                     | 74       | 83      | 81       | 89                         |
| 3  | SAKURA 850 WG<br>SENCOR      | 118 g/ha<br>150 g/ha | 60                     | 70       | 77      | 72       | 82                         |
| 4  | SAKURA 850 WG<br>AVADEX XTRA | 118 g/ha<br>1.6 L/ha | 73                     | 81       | 85      | 84       | 93                         |
| 5  | TRIFLURX                     | 2 L/ha               | 37                     | 67       | 55      | 39       | 73                         |
| 6  | TRIFLURX<br>AVADEX XTRA      | 1.5 L/ha<br>1.6 L/ha | 53                     | 71       | 72      | 33       | 77                         |
| 7  | PRODUCT X                    | 2.5 L/ha             | 57                     | 65       | 52      | 30       | 78                         |

## BROME GRASS CONTROL

Sakura 118 g/ha applied solo recorded commercially acceptable suppression (81%) of brome grass at the final rating 106 DAA.

The tank mixture of Sakura with Avadex Xtra provided a slight increase in control early at 22 DAA and 35 DAA although by 50 DAA the difference was negligible with only a 3% increase over Sakura alone at 106 DAA.

The tank mixture of Sakura + Sencor consistently recorded a reduction in control in this trial compared to Sakura applied solo. With both products relying on root uptake there may be a level of antagonism present under dry conditions that prevents adequate uptake of Sakura. Further work will be required to confirm this.

All Sakura treatments recorded superior control of brome grass compared to TriflurX 2 L/ha, TriflurX 1.5 L/ha + Avadex Xtra 1.6 L/ha and Boxer Gold 2.5 L/ha at all assessments.

### Post-emergent application of Atlantis OD 330 mL/ha = Hasten 1% v/v 5/7/2010

The post emergent application of Atlantis OD at 330 mL/ha recorded an increase in control with all Sakura treatments of around 10%. This supports other work that Sakura is not antagonistic to the efficacy of Atlantis.

### Foreign Seed Contaminants – Class WS7B (max 50 per ½ litre)

Brome grass seeds per hectolitre

|    |                              | Assessment Date      | 15/09/10 | 4/11/10    | 4/11/10   |
|----|------------------------------|----------------------|----------|------------|-----------|
|    |                              | Appl.-Ass. Interval  | 106 DAA  | 156 DAA    | 156 DAA   |
|    |                              | Rating Type          | Rating   | Count      | Count     |
|    |                              | Rating Scale         | %        | hectolitre | %         |
| No | Treatment                    | Rate/ ha             | Control  | seeds      | % control |
| 1  | UNTREATED                    |                      | 0        | 183 a      | 0         |
| 2  | SAKURA 850 WG                | 118 g/ha             | 81       | 13 a       | 93        |
| 3  | SAKURA 850 WG<br>SENCOR      | 118 g/ha<br>150 g/ha | 72       | 21 a       | 88        |
| 4  | SAKURA 850 WG<br>AVADEX XTRA | 118 g/ha<br>1.6 L/ha | 84       | 16 a       | 91        |
| 5  | TRIFLURX                     | 2 L/ha               | 39       | 81 a       | 56        |
| 6  | TRIFLURX<br>AVADEX XTRA      | 1.5 L/ha<br>1.6 L/ha | 33       | 35 a       | 81        |
| 7  | PRODUCT X                    | 2.5 L/ha             | 30       | 80 a       | 56        |

## DISCUSSION

The trial site received a double knockdown with a glyphosate spray on the 31st May followed by a Sprayseed application on the 1st June. The trial treatments were applied to slightly dry top soil. There was some green material present on the site at the application of the trial treatments. The trial was sown by the grower 30 minutes after treatments were applied with knife point and press wheels on 7 inch row spacing. The majority of brome grass emerged in the second half of July following good rainfall.

Rainfall (taken from Binu ~50 km North West)

Spring rainfall was very low with only 9 mm recorded. This resulted in early senescence of the crop and as a result the crop did not meet its yield potential.

Approximately 175 mm of rainfall was recorded at the site from the start of May to the end of November. 150 mm of rainfall was recorded on the site from the application of the treatments to harvest.

\*Sakura is not currently registered.

\*An application for suppression of brome grass with Sakura has not been made.

## TECHNICAL SUPPORT

Rick Horbury – Technical Advisor, Bayer CropScience; Bernie Quade, Landmark Geraldton

## IN-KIND SUPPORT

Thanks to Darrel for allowing us to conduct the trial and Peter Burchell for mixing the treatments.