



# Hart Beat

Hart Field-Site Group Inc  
[www.hartfieldsite.org.au](http://www.hartfieldsite.org.au)

13<sup>th</sup> October 2011 Issue 16

## Control of annual ryegrass with pre-emergence herbicides

GRDC funded trials have been undertaken over several seasons (2003 to present) at the Hart field site to evaluate the efficacy & crop safety of alternate pre-emergent herbicides & their mixtures for the control of ryegrass in wheat.

### Key findings for 2011:

- Trifluralin applied alone provided only 65% control of ryegrass
- Control from the IBS (incorporated by sowing) treatments averaged 74%
- Treatments applying only one herbicide IBS averaged 66% control, while the IBS treatments including two herbicides averaged 85% control
- Control from treatments using a PSPE (post sowing, pre-emergent) application averaged 85%
- IBS treatments gave 62% control of ryegrass germinating in the crop row
- Treatments incorporating a PSPE application of Boxer Gold or Dual Gold averaged 82% control of ryegrass in the row
- Sakura provided lower levels of ryegrass control in 2011, but over the past five years (2006 to 2010) has averaged 80% when applied alone IBS, and even better when applied as a tank mixture with Avadex Xtra.

Read more on back page.....

## HART FIELD DAY 2011

A quote from our chairman, Matt Dare:

*"The Hart committee were very pleased with the success of the day, particularly given the unfavourable weather conditions. Lunch-time speaker Dr Andy Barr's presentation was one of the highlights. His message about the importance of agricultural research and grower levies to fund research to improve productivity in the future reinforced the work being done at the Hart Field-Site."*

Read more about the Field Day on the Hart website:

[www.hartfieldsite.org.au](http://www.hartfieldsite.org.au)



## SPRING TWILIGHT WALK

Tuesday, 18<sup>th</sup> October 2011

wheat & barley varieties | pulse varieties & agronomy | controlling summer weeds  
managing crop growth & water use | droplet size & weed control



5pm start - at Hart  
BBQ & beers supplied



[www.hartfieldsite.org.au](http://www.hartfieldsite.org.au)

# Hart

Site information as of 13<sup>th</sup> October 2011

The season so far

Annual rain to date: 329mm(32mm since last report)

GSR to date: 202mm

GSR decile: 2.0

Current predicted PAW: 12mm

Crop growth

Variety: Gladius Sowing date: 30<sup>th</sup> May 2011

Nitrogen fertiliser: 51kgN/ha

## Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2011)

These estimates are based on a 50% probability

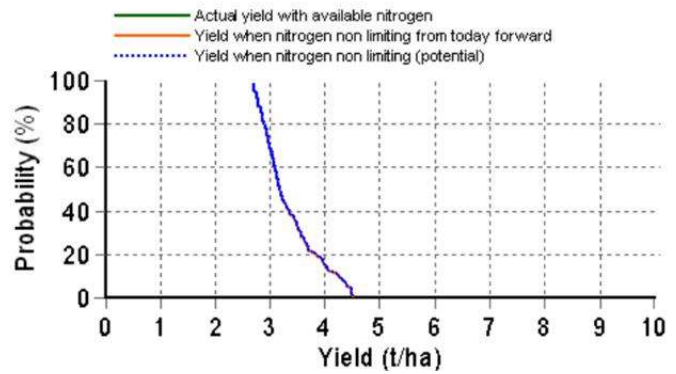
Yield t/ha	Sown 30 <sup>th</sup> May (see graph)	Change from last report	Sown 10 <sup>th</sup> June	Change from last report
Grain	3.2	+0.3	2.9	+0.3

French & Schultz grain yield estimate:

100% WUE: 2.9 t/ha, 80% WUE: 2.3 t/ha

This model assumes that there is 38mm stored moisture, 110mm of evaporation and decile 5 (14mm) rainfall for the rest of the season.

Grain Yield Outcome



This graph shows the chance of reaching the corresponding yield given weather, soil conditions and agronomic inputs to date, and historical climate data (100yrs) to simulate remainder of the season.

# Condowie

Site information as of 13<sup>th</sup> October 2011

The season so far

Annual rain to date: 342mm(36mm since last report)

GSR to date: 214mm

GSR decile: 4.5

Current predicted PAW: 42mm

Crop growth

Variety: Gladius Sowing date: 21<sup>st</sup> May 2011

Nitrogen fertiliser: 8kgN/ha

## Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2011)

These estimates are based on a 50% probability

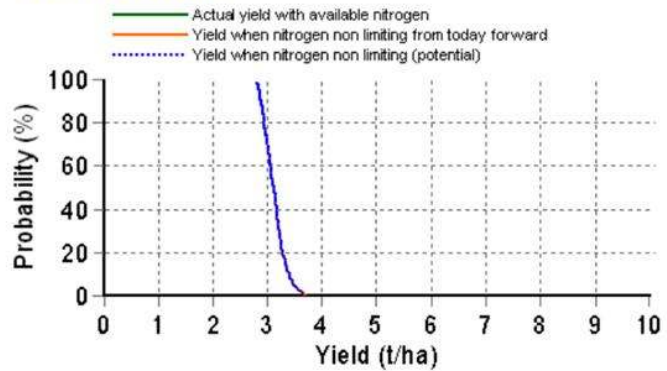
Yield t/ha	Sown 21 <sup>st</sup> May (see graph)	Change from last report	Sown 5 <sup>th</sup> June	Change from last report
Grain	3.1	+0.4	2.8	+0.4

French & Schultz grain yield estimate:

100% WUE: 3.1 t/ha, 80% WUE: 2.5 t/ha

This model assumes that there is 38mm stored moisture, 110mm of evaporation and decile 5 (13mm) rainfall for the rest of the season.

Grain Yield Outcome



This graph shows the chance of reaching the corresponding yield given weather, soil conditions and agronomic inputs to date, and historical climate data (100yrs) to simulate remainder of the season.

# Kybunga

Site information as of 13<sup>th</sup> October 2011

The season so far

Annual rain to date: 376mm(54mm since last report)

GSR to date: 214mm

GSR decile: 3.5

Current predicted PAW: 50mm

Crop growth

Variety: Gladius Sowing date: 15<sup>th</sup> May 2011

Nitrogen fertiliser: 60kgN/ha

## Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2011)

These estimates are based on a 50% probability

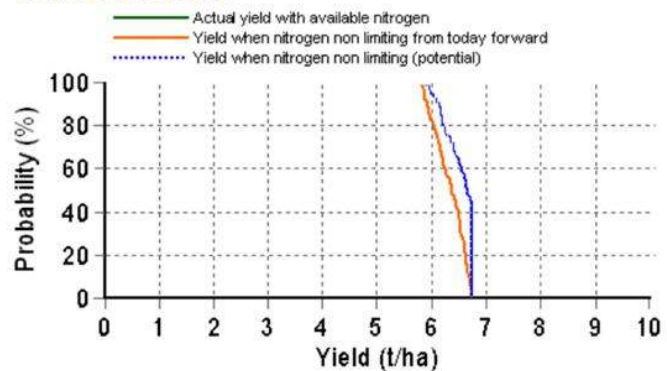
Yield t/ha	Sown 15 <sup>th</sup> May (see graph)	Change from last report	Sown 5 <sup>th</sup> June	Change from last report
Grain	6.3	+0.8	5.3	+0.7

French & Schultz grain yield estimate:

100% WUE: 3.7 t/ha, 80% WUE: 3.0 t/ha

This model assumes that there is 40mm stored moisture, 110mm of evaporation and decile 5 (13mm) rainfall for the rest of the season.

Grain Yield Outcome



This graph shows the chance of reaching the corresponding yield given weather, soil conditions and agronomic inputs to date, and historical climate data (100yrs) to simulate remainder of the season.

# Spalding

Site information as of 13<sup>th</sup> October 2011

The season so far

Annual rain to date: 361mm(34mm since last report)

GSR to date: 221mm

GSR decile: 2.5

Current predicted PAW: 17mm

Crop growth

Variety: Gladius Sowing date: 19<sup>th</sup> May 2011

Nitrogen fertiliser: 48kgN/ha

## Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2011)

These estimates are based on a 50% probability

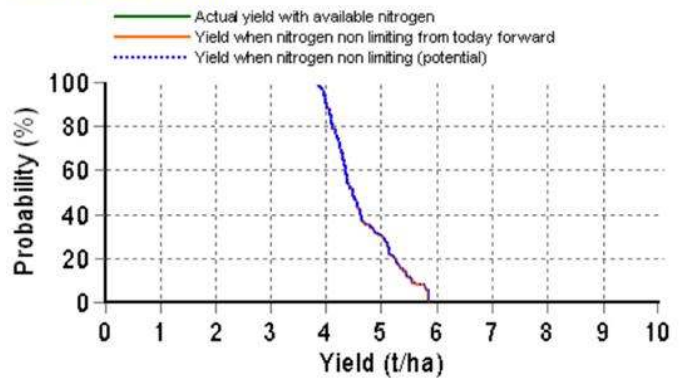
Yield t/ha	Sown 19 <sup>th</sup> May (see graph)	Change from last report	Sown 5 <sup>th</sup> June	Change from last report
Grain	4.5	-0.2	3.9	Nil

French & Schultz grain yield estimate:

100% WUE: 3.4 t/ha, 80% WUE: 2.7 t/ha

This model assumes that there is 42mm stored moisture, 110mm of evaporation and decile 5 (15mm) rainfall for the rest of the season.

Grain Yield Outcome



This graph shows the chance of reaching the corresponding yield given weather, soil conditions and agronomic inputs to date, and historical climate data (100yrs) to simulate remainder of the season.

# Farrell Flat

Site information as of 13<sup>th</sup> October 2011

The season so far

Annual rain to date: 353mm(56mm since last report)

GSR to date: 239mm

GSR decile: 2.0

Current predicted PAW: 59mm

Crop growth

Variety: Gladius Sowing date: 15<sup>th</sup> May 2011

Nitrogen fertiliser: 70kgN/ha

## Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2011)

These estimates are based on a 50% probability

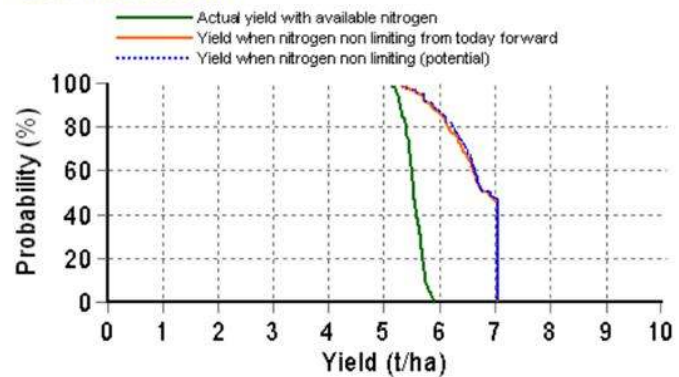
Yield t/ha	Sown 15 <sup>th</sup> May (see graph)	Change from last report	Sown 5 <sup>th</sup> June	Change from last report
Grain	5.5	nil	5.0	+0.1

French & Schultz grain yield estimate:

100% WUE: 3.6 t/ha, 80% WUE: 2.9 t/ha

This model assumes that there is 34mm of soil moisture, 110mm of evaporation and decile 5 (18mm) rainfall for the rest of the season.

Grain Yield Outcome



This graph shows the chance of reaching the corresponding yield given weather, soil conditions and agronomic inputs to date, and historical climate data (100yrs) to simulate remainder of the season.

# Tarlee

Site information as of 13<sup>th</sup> October 2011

The season so far

Annual rain to date: 392mm(52mm since last report)

GSR to date: 271mm

GSR decile: 1.5

Current predicted PAW: 45mm

Crop growth

Variety: Scout Sowing date: 13<sup>th</sup> May 2011

Nitrogen fertiliser: 70kgN/ha

## Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2011)

These estimates are based on a 50% probability

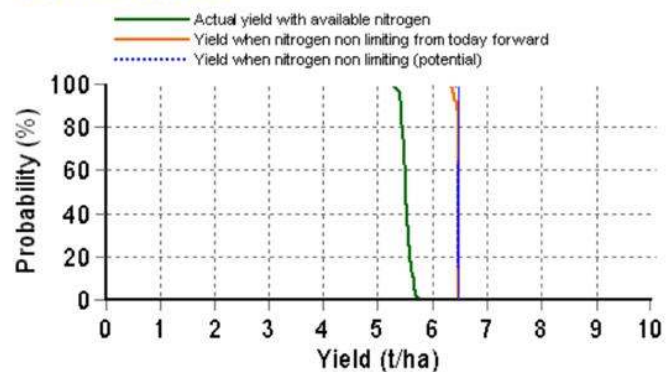
Yield t/ha	Sown 13 <sup>th</sup> May (see graph)	Change from last report	Sown 5 <sup>th</sup> June	Change from last report
Grain	5.5	-0.2	5.3	+0.1

French & Schultz grain yield estimate:

100% WUE: 4.5 t/ha, 80% WUE: 3.6 t/ha

This model assumes that there is 41mm stored moisture, 110mm of evaporation and decile 5 (22mm) rainfall for the rest of the season.

Grain Yield Outcome



This graph shows the chance of reaching the corresponding yield given weather, soil conditions and agronomic inputs to date, and historical climate data (100yrs) to simulate remainder of the season.



# Hart Beat

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In 2011 at Hart all of the herbicide treatments had good crop safety under the knife point press wheel system, with 12 mm of rain falling 3 days after application.

Combinations of Boxer Gold, Avadex Xtra and Sakura provided consistent pre-emergent control of Group D resistant annual ryegrass (Table 1). PSPE herbicide applications improve overall ryegrass control, especially in the crop row. However, this strategy presents a higher risk to crop safety, depending on soil type, crop development, sowing depth, seeding system & rainfall after application. Furthermore, although most of the new pre-emergent herbicides provide alternative modes of action to trifluralin, they should be used in conjunction with robust

management strategies that use a diverse rotation of crops, herbicides and non-chemical strategies (i.e. seed catching) to prolong the life of existing and new chemical groups against ryegrass.

**Acknowledgements:** This trial was funded by GRDC & conducted in collaboration with Birchip Cropping Group, The University of Adelaide & the Hart Field-Site Group.

**Disclaimer and further info:** This is a brief summary of results recorded at Hart and does not constitute a general recommendation. The 2011 Hart Trials Results will be posted to all Hart Gold & Silver members once published in early March 2012. Historical results and copies for non-members are available by contacting our Secretary, Sandy Kimber; admin@hartfieldsite.org.au.

**Table 1:**  
Pre-emergent herbicides treatments, ryegrass density (plants per square metre, pl/m<sup>2</sup>) and % control measured in August at Hart 2011.

Treatments	% ryegrass control		Approx cost of treatment
	2010	2011	\$/ha
Nil (untreated control)	325 pl/m <sup>2</sup>	531 pl/m <sup>2</sup>	na
Trifluralin 480 1.5 L/ha (IBS)	52	65	7.5
Avadex Xtra 3.0 L/ha (IBS)	63	65	30.0
Sakura 118 g/ha (IBS)	77	59	na
Boxer Gold 2.5 L/ha (IBS)	58	73	34.0
Trifluralin 480 1.5 L/ha + Avadex Xtra 2.0 L/ha (IBS)	76	80	27.5
Avadex Xtra 2.0 L/ha + Boxer Gold 2.5 L/ha (IBS)	80	88	54.0
Ava Xtra 2.0 L/ha + Sakura 118 g/ha (IBS) (80g in 2010)	90	86	na
Trifluralin 480 1.5 L/ha + Avadex Xtra 2.0 L/ha (IBS) + Dual Gold 0.5 L/ha (PSPE)	90	80	37.5
Trifluralin 480 1.5 L/ha + Avadex Xtra 2.0 L/ha (IBS) + Boxer Gold 1.5 L/ha (PSPE)	92	90	48.0
Boxer Gold 2.0 L/ha (IBS) + Boxer Gold 1.5 L/ha (PSPE) (1.5L + 1.0L in 2010)	78	84	47.6
LSD (0.05)	60	59	

## Rainfall and water soil characteristics for WUE sites

Site	Average annual rainfall (mm)	Soil type	Pre-sowing soil moisture (0-90cm)(mm)	Pre-sowing soil nitrogen (0-90cm) (kg N/ha)	Plant Available Water Capacity (mm)
Condowie	350	Sandy loam	24	241	127
Hart	400	Sandy clay loam	26	189	201
Spalding	430	Red brown earth	51	265	150
Tarlee	470	Clay loam over clay on rock	26	100	163
Kybunga	428	Friable clay loam	85	185	263
Farrell Flat	474	Red clay loam over clay	64	123	173

## HART FIELD-SITE GROUP INC – Contact information

### Sponsorship enquiries:

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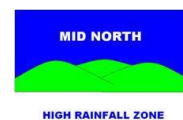
### Trials information:

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