



# Hart Beat

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

5<sup>th</sup> July 2012 Issue 17

## From the Chairman:

Welcome Hart members, to the first edition of HART BEAT for the 2012 season. At this stage we intend to produce 4-5 editions of HART BEAT depending on seasonal conditions.

Members who received HART BEAT last year will be familiar with the *Yield Prophet*<sup>®</sup> format. For new Hart members, the information provided within HART BEAT comes from running the *Yield Prophet*<sup>®</sup> simulation model at six locations throughout the mid North (Hart, Condownie, Spalding, Farrell Flat, Kybunga and Tarlee). At each of these locations detailed soil measurements have been taken to improve accuracy of *Yield Prophet* reports. For more information about *Yield Prophet*<sup>®</sup> refer to the back page of this edition of Hart Beat, visit the new Hart website (details below) and follow the links or contact our trial managers, Peter Hooper & Roy Rogers.

In comparison to last season, plant available water (PAW) at five of the six sites is less than this time last year. Consequently *Yield Prophet*<sup>®</sup> forecast yields are lower at this point in the season than at the same time in 2011. The Tarlee site is an exception though, having almost 100mm more PAW than in early July 2011. In addition to high background soil

nitrogen (170kg/ha) we could expect to see very high yields achieved at the Tarlee site this season. The current *Yield Prophet*<sup>®</sup> forecast is for 80% chance 6.0t/ha in Scout wheat at the Tarlee site if average rainfall occurs over the next few months.

We hope Hart Beat and *Yield Prophet*<sup>®</sup> provides you with valuable information to use when making decisions regarding the soil moisture status of your soil(s) and nitrogen status of your crops. We value and invite your feedback in relation to this product and how we can possibly improve it further.

Remember for comprehensive access to all Hart activities and information including trials, trial results, media articles etc. check out the Hart website at [www.hartfieldsite.org.au](http://www.hartfieldsite.org.au).

Our half day WINTER WALK is also fast approaching. To be held on Tuesday, 24<sup>th</sup> July from 9am, it is a very interactive morning with good group discussion and a chance to look at early treatment effects in a range of trials.

Once again we have some exciting activities planned for this season. I hope to see you at up-coming Hart events in 2012 and on behalf of the Hart board "thank you" for your continued support.

*Matt. Dare*

## DIARY DATES

### Winter Walk

Tuesday 24<sup>th</sup> July 2012

9am start

*Morning tea provided*

### HART FIELD DAY

Tuesday 18<sup>th</sup> September 2012

### Spring Twilight Walk

Tuesday 16<sup>th</sup> October 2012

5pm start

*BBQ & drinks to follow*

Further details:

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



Sowing trials at Hart, 2012

# Hart

The season so far

Annual rain to date: 156mm

GSR to date: 78mm

GSR decile: 2.0

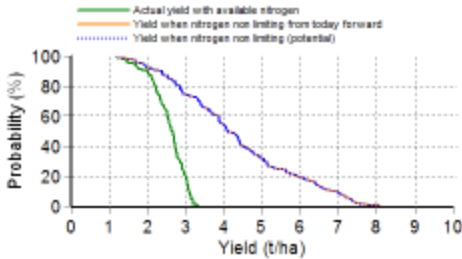
Current predicted PAW: 51mm

Crop growth

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

Nitrogen fertiliser: 14kgN/ha

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.

Site information as of 5<sup>th</sup> July 2012

## Grain & hay yield predictions

Yield prophet estimate: (Date of report 1/07/2012)

These estimates are based on a 50% probability

Yield t/ha	Sown 30 <sup>th</sup> May (see graph)	Yield est. same time last year	Sown 10 <sup>th</sup> June	Change from last report
Grain	3.5	4.0 t/ha	3.2	0.0

### French & Schultz grain yield estimate:

100% WUE: 3.7t/ha, 80% WUE: 2.9/ha

This model assumes that there is 110mm of evaporation and decile 5 (215mm) rainfall for the remainder of the growing season.



# Condowie

The season so far

Annual rain to date: 177mm

GSR to date: 91mm

GSR decile: 5.0

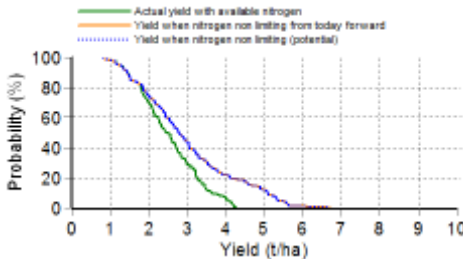
Current predicted PAW: 43mm

Crop growth

Variety: Gladius Sowing date: 18<sup>th</sup> May

Nitrogen fertiliser: 12kgN/ha

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.

Site information as of 5<sup>th</sup> July 2012

## Grain & hay yield predictions

Yield prophet estimate: (Date of report 1/07/2012)

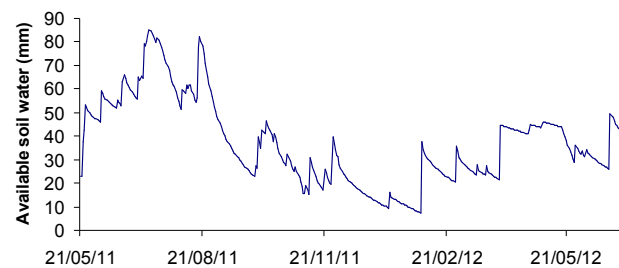
These estimates are based on a 50% probability

Yield t/ha	Sown 18 <sup>th</sup> May (see graph)	Yield est. same time last year	Sown 5 <sup>th</sup> June	Change from last report
Grain	2.5	3.0 t/ha	2.2	0.0

### French & Schultz grain yield estimate:

100% WUE: 2.4t/ha, 80% WUE: 1.9/ha

This model assumes that there is 110mm of evaporation and decile 5 (140mm) rainfall for the remainder of the growing season.



# Kybunga

The season so far

Annual rain to date: 187mm

GSR to date: 100mm

GSR decile: 2.5

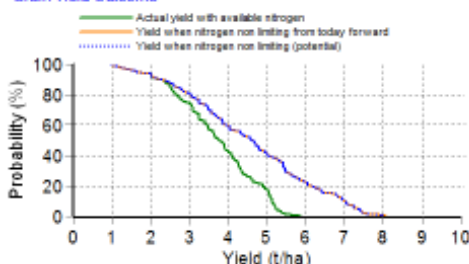
Current predicted PAW: 56mm

Crop growth

Variety: Gladius Sowing date: 17<sup>th</sup> May

Nitrogen fertiliser: 15kgN/ha

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.

Site information as of 5<sup>th</sup> July 2012

## Grain & hay yield predictions

Yield prophet estimate: (Date of report 1/07/2012)

These estimates are based on a 50% probability

Yield t/ha	Sown 17 <sup>th</sup> May (see graph)	Yield est. same time last year	Sown 5 <sup>th</sup> June	Change from last report
Grain	5.4	6.1 t/ha	4.3	0.0

### French & Schultz grain yield estimate:

100% WUE: 0.0t/ha, 80% WUE: 0.0/ha

This model assumes that there is 110mm of evaporation and decile 5 (279mm) rainfall for the remainder of the growing season.



# Spalding

The season so far

Annual rain to date: 176mm

GSR to date: 75mm

GSR decile: 1.5

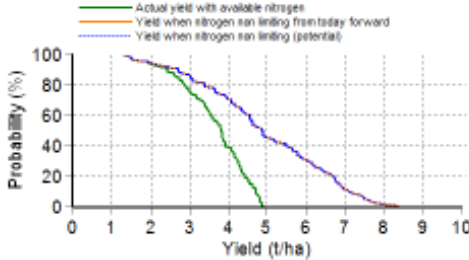
Current predicted PAW: 53mm

Crop growth

Variety: Gladius Sowing date: 18<sup>th</sup> May

Nitrogen fertiliser: 14kgN/ha

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.

Site information as of 5<sup>th</sup> July 2012

Grain & hay yield predictions

Yield prophet estimate: (Date of report 1/07/2012)

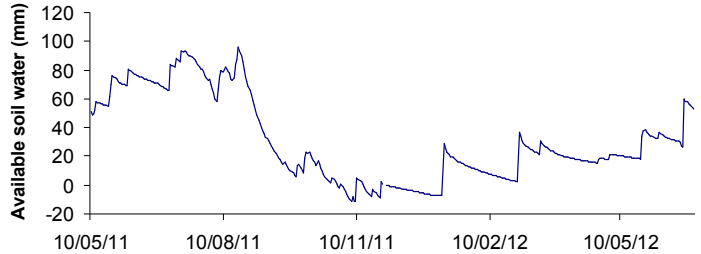
These estimates are based on a 50% probability

Yield t/ha	Sown 18 <sup>th</sup> May (see graph)	Yield est. same time last year	Sown 5 <sup>th</sup> June	Change from last report
Grain	4.3	5.5 t/ha	3.8	0.0

French & Schultz grain yield estimate:

100% WUE: 3.9t/ha, 80% WUE: 3.2/ha

This model assumes that there is 110mm of evaporation and decile 5 (232mm) rainfall for the remainder of the growing season.



# Farrell Flat

The season so far

Annual rain to date: 149mm

GSR to date: 75mm

GSR decile: 1.0

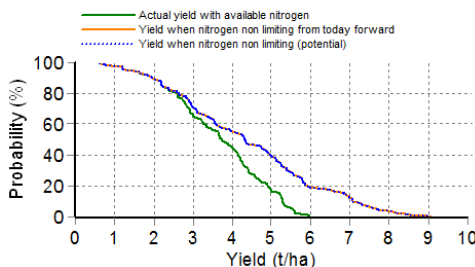
Current predicted PAW: 39mm

Crop growth

Variety: Scout Sowing date: 15<sup>th</sup> May

Nitrogen fertiliser: 15kgN/ha

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.

Site information as of 5<sup>th</sup> July 2012

Grain & hay yield predictions

Yield prophet estimate: (Date of report 1/07/2010)

These estimates are based on a 50% probability

Yield t/ha	Sown 15 <sup>th</sup> May (see graph)	Yield est. same time last year	Sown 5 <sup>th</sup> June	Change from last report
Grain	5.0	5.8 t/ha	4.0	0.0

French & Schultz grain yield estimate:

100% WUE: 4.7t/ha, 80% WUE: 3.8/ha

This model assumes that there is 110mm of evaporation and decile 5 (271mm) rainfall for the remainder of the growing season.



# Tarlee

The season so far

Annual rain to date: 193mm

GSR to date: 109mm

GSR decile: 4.0

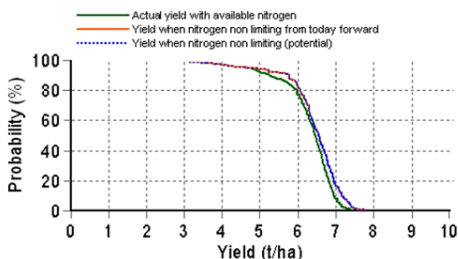
Current predicted PAW: 136mm

Crop growth

Variety: Scout Sowing date: 12<sup>th</sup> May

Nitrogen fertiliser: 50kgN/ha

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.

Site information as of 5<sup>th</sup> July 2012

Grain & hay yield predictions

Yield prophet estimate: (Date of report 1/07/2012)

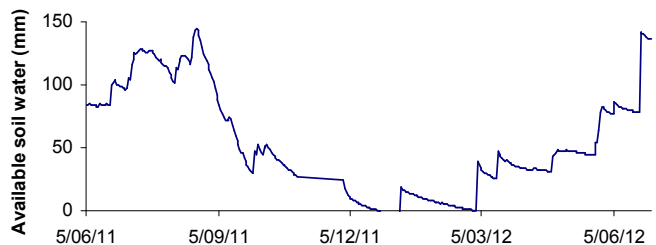
These estimates are based on a 50% probability

Yield t/ha	Sown 12 <sup>th</sup> May (see graph)	Yield est. same time last year	Sown 5 <sup>th</sup> June	Change from last report
Grain	6.5	5.0 t/ha	5.5	0.0

French & Schultz grain yield estimate:

100% WUE: 4.8t/ha, 80% WUE: 3.8/ha

This model assumes that there is 110mm of evaporation and decile 5 (239mm) rainfall for the remainder of the growing season.





# Hart Beat

## WUE site locations



## Hart Beat definitions

Each site has been characterised for plant available water capacity (PAWC) and bulk density to determine how much of the measured water and nitrogen is available to the crop during the season.

**Drained upper limit (DUL)** – is the amount of water that a saturated soil holds after it has drained.

**Crop lower limit (CLL)** – is the amount of water remaining in the soil after crop senescence.

**Plant available water capacity (PAWC)** – is the difference between the drained upper limit of the soil and the lower extraction limit of a crop over the depth of rooting. It is the maximum water available to a crop from a particular soil type.

**Plant available water (PAW)** – is the amount of water contained in the soil at a given time minus the crop lower limit.

**Bulk density (BD)** – is a measure of the weight of dry soil per unit volume of soil.

**Growing season rainfall (GSR)** – is rainfall for the period between and including April to October.

**Decile** – is a measure of seasonal rainfall on a scale of 1 to 9. In a decile 7 year, 70% of previous years were dryer, in a decile 3 year 30% of previous years were dryer.

The **French & Schultz** formula estimates the rainfall limited grain yield based on the growing season rainfall (GSR). It assumes evaporation of 110mm, includes stored water at sowing (30% of Jan to Mar rainfall) and a maximum grain yield potential of 20 kg/mm/ha.

Yield Potential = GSR (Apr-Oct) – Evaporation (110mm) \* 20 kg/mm/ha.

**Yield Prophet®** has been very accurate throughout Australia, over the past 5 seasons. At the Hart field site the *Yield Prophet®* prediction on the 15<sup>th</sup> September, using an average finish, has been only 16% above the final grain yield, averaged over the past 4 years, making wheat growth models such as APSIM highly valuable.

*Yield Prophet®* is an internet based service which uses the APSIM wheat prediction model.

The model relies on accurate soil, crop, historical climate data and up to date local weather information to predict plant growth rates and final hay or grain yields. These are critical measurements specific to the site being analysed and may not fit closely to individual situations. Instead the predictions will give a realistic guide to seasonal prospects based on a site with similar rainfall and / or soil type.

Using climate data for the current season, *Yield Prophet®* simulates the soil water and nitrogen processes in the paddock, and crop growth. *Yield Prophet®* calculates the amount of water and nitrogen available to the crop and the water and nitrogen demand of the crop.

### 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/ha)	Plant Available Water Capacity (mm)
Condowie	350	Sandy loam	13	114	127
Hart	400	Sandy clay loam	15	65	201
Spalding	430	Red brown earth	36	94	150
Tarlee	470	Clay loam over clay on rock	95	170	163
Kybunga	428	Friable clay loam	10	159	263
Farrell Flat	474	Red clay loam over clay	31	87	173

### HART FIELD-SITE GROUP INC – Contact information

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**Disclaimer:** *Yield Prophet®* information is used entirely at your own risk. You will accept all risks and responsibility for losses, damages, costs and other consequences of using *Yield Prophet®* information and reports. To the maximum extent permitted by law, APSRU and BCG excludes all responsibility and liability to any person arising directly or indirectly from using the information generated by *Yield Prophet®*

**Important Notice:** *Yield Prophet®* does not generate recommendations or advice, it is only a guide and must be combined with local paddock and district knowledge. APSIM does not take into account weed competition, pest/disease pressure, pesticide/herbicide damage, farmer error, or extreme events (such as extreme weather, flood and fire). For more information about APSIM or *Yield Prophet®* please visit [www.yieldprophet.com.au](http://www.yieldprophet.com.au)