Hart Beat

Hart Field-Site Group Inc
www.hartfieldsite.org.au
5th July 2011 Issue 12

From the Chairman:

Welcome Hart members, to the first edition of HART BEAT for 2011.

The Hart Field Site Group intends to produce 4-5 editions of HART BEAT for 2011 depending on seasonal conditions. Members who received HART BEAT last year will be familiar with the *Yield Prophet*® format. For new Hart members, the information provided within HART BEAT comes from running the *Yield Prophet*® simulation model at six locations throughout the Mid North

We have included two new locations in 2011 being Kybunga and Farrell Flat. At each site detailed soil measurements have been taken to improve accuracy of *Yield Prophet* reports. For more information about *Yield Prophet*® 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 trials manager, Peter Hooper.

We hope Hart Beat and *Yield Prophet*® 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.

I would also like to take this opportunity to make Hart members aware of an upcoming spray application workshop we are planning to hold in Spring. More details will become available in the coming weeks as guest speakers and dates are finalized.

Our half day WINTER WALK is also fast approaching. To be held on Tuesday, 26th July from 9am, it will be a good chance to look at early treatment effects and varieties.

Remember for comprehensive access to all Hart activities and information including event programs, diary dates, media articles etc. check out the Hart website at **www.hartfieldsite.org.au**.

I hope to see you at up-coming Hart events in 2011 and on behalf of the Hart board "thank you" for your continued support.

Matt. Dare

DIARY DATES

Winter Walk
Tuesday 26th July
9am start
Morning tea provided

HART FIELD DAY
Thursday 22nd September

Spring Twilight Walk
Tuesday 18th October

Further details:
www.hartfieldsite.org.au

Live link to the Hart weather station coming to our website soon!

Photo: Seeding at Hart in 2011

CASE machinery supplied by our major sponsor: Rocky River Ag Services

Hart

Site information as of 5th July 2011

The season so far

Annual rain to date: 219mm
GSR to date: 91mm
GSR decile: 2.0
Current predicted PAW: 64mm

Crop growth

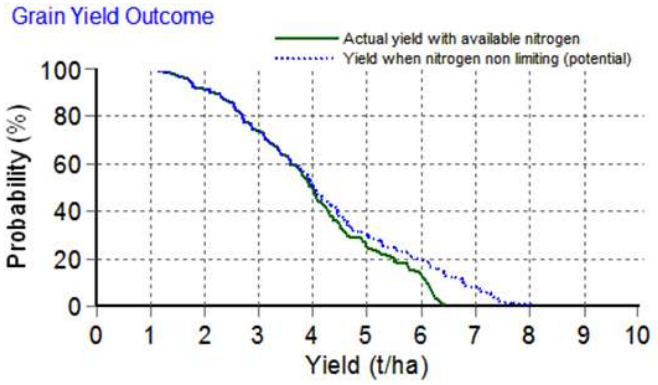
Variety: Gladius **Sowing date:** 30th May 2011
Nitrogen fertiliser: 9kgN/ha

Grain yield predictions

Yield prophet estimate: (Date of report 5/07/2011)
These estimates are based on a 50% probability

Yield t/ha	Sown 30th May (see graph)	Change from last report	Sown 10th June	This time last year
Grain	4.0	0	3.5	3.0

French & Schultz grain yield estimate:
100% WUE: 3.9 t/ha, 80% WUE: 3.2 t/ha
This model assumes that there is 38mm stored moisture, 110mm of evaporation and decile 5 (177mm) rainfall for the rest of the season.



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 5th July 2011

The season so far

Annual rain to date: 221mm
GSR to date: 93mm
GSR decile: 5.0
Current predicted PAW: 65mm

Crop growth

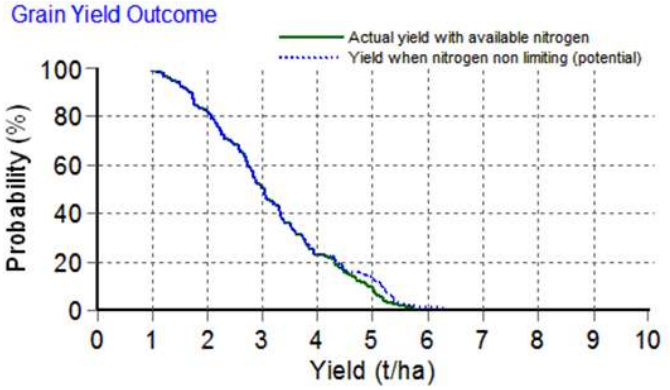
Variety: Gladius **Sowing date:** 21st May 2011
Nitrogen fertiliser: 8kgN/ha

Grain yield predictions

Yield prophet estimate: (Date of report 5/07/2011)
These estimates are based on a 50% probability

Yield t/ha	Sown 21st May (see graph)	Change from last report	Sown 5th June	This time last year
Grain	3.0	0	2.5	na

French & Schultz grain yield estimate:
100% WUE: 3.2 t/ha, 80% WUE: 2.5 t/ha
This model assumes that there is 38mm stored moisture, 110mm of evaporation and decile 5 (138mm) rainfall for the rest of the season.



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 5th July 2011

The season so far

Annual rain to date: 225mm
GSR to date: 91mm
GSR decile: 2.0
Current predicted PAW: 115mm

Crop growth

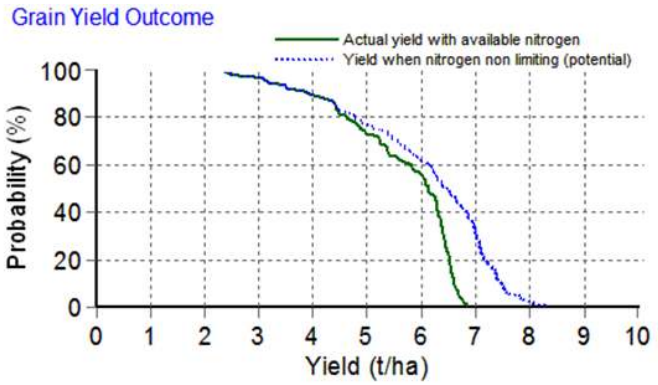
Variety: Gladius **Sowing date:** 15th May 2011
Nitrogen fertiliser: 30kgN/ha

Grain yield predictions

Yield prophet estimate: (Date of report 5/07/2011)
These estimates are based on a 50% probability

Yield t/ha	Sown 15th May (see graph)	Change from last report	Sown 5th June	This time last year
Grain	6.1	0	5.1	na

French & Schultz grain yield estimate:
100% WUE: 5.0 t/ha, 80% WUE: 4.0 t/ha
This model assumes that there is 40mm stored moisture, 110mm of evaporation and decile 5 (231mm) rainfall for the rest of the season.



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 5th July 2011

The season so far

Annual rain to date: 235mm
GSR to date: 95mm
GSR decile: 3.0
Current predicted PAW: 79mm

Crop growth

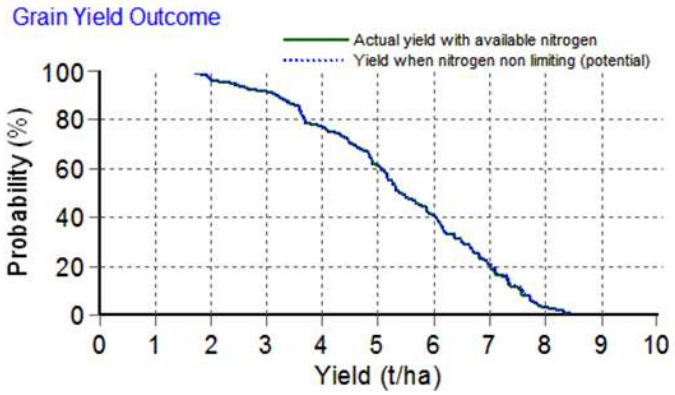
Variety: Gladius **Sowing date:** 19th May 2011
Nitrogen fertiliser: 48kgN/ha

Grain yield predictions

Yield prophet estimate: (Date of report 5/07/2011)
These estimates are based on a 50% probability

Yield t/ha	Sown 19th May (see graph)	Change from last report	Sown 5th June	This time last year
Grain	5.5	0	4.4	4.8

French & Schultz grain yield estimate:
100% WUE: 5.2 t/ha, 80% WUE: 4.1 t/ha
This model assumes that there is 42mm stored moisture, 110mm of evaporation and decile 5 (190mm) rainfall for the rest of the season.



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 5th July 2011

The season so far

Annual rain to date: 221mm
GSR to date: 107mm
GSR decile: 3.0
Current predicted PAW: 119mm

Crop growth

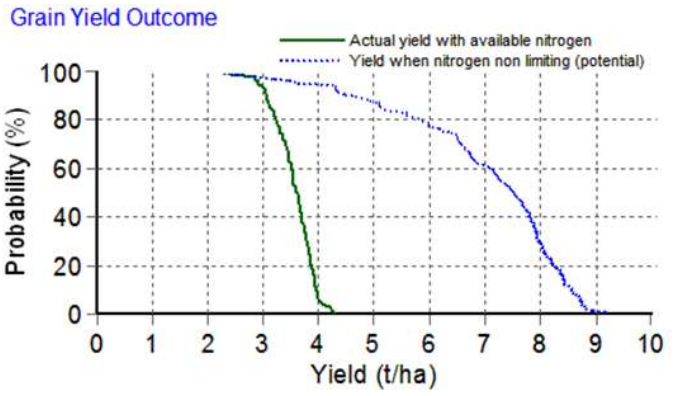
Variety: Gladius **Sowing date:** 15th May 2011
Nitrogen fertiliser: 30kgN/ha

Grain yield predictions

Yield prophet estimate: (Date of report 5/07/2011)
These estimates are based on a 50% probability

Yield t/ha	Sown 15th May (see graph)	Change from last report	Sown 5th June	This time last year
Grain	3.6	0	4.7	na

French & Schultz grain yield estimate:
100% WUE: 4.9 t/ha, 80% WUE: 3.9 t/ha
This model assumes that there is 34mm of soil moisture, 110mm of evaporation and decile 5 (218mm) rainfall for the rest of the season.



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 5th July 2011

The season so far

Annual rain to date: 235mm
GSR to date: 110mm
GSR decile: 1.5
Current predicted PAW: 40mm

Crop growth

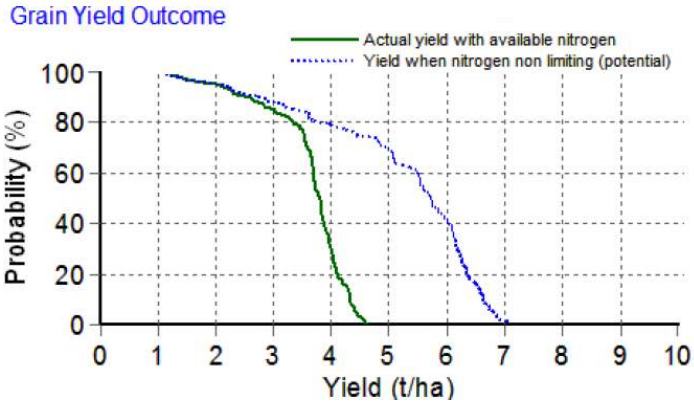
Variety: Scout **Sowing date:** 13th May 2011
Nitrogen fertiliser: 50kgN/ha

Grain yield predictions

Yield prophet estimate: (Date of report 5/07/2011)
These estimates are based on a 50% probability

Yield t/ha	Sown 13th May (see graph)	Change from last report	NA	This time last year
Grain	3.8	0	0	6.2

French & Schultz grain yield estimate:
100% WUE: 4.9 t/ha, 80% WUE: 3.9 t/ha
This model assumes that there is 41mm stored moisture, 110mm of evaporation and decile 5 (215mm) rainfall for the rest of the season.



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

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 15th 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	Drained upper limit (mm to 150cm)	Crop lower limit (mm to 150cm)	Plant Available Water Capacity (mm)
Condowie	350	Sandy loam	376	249	127
Hart	400	Sandy clay loam	683	482	201
Spalding	430	Red brown earth	469	319	150
Tarlee	470	Clay loam over clay on rock	511	348	163
Kybunga	506	Friable clay loam	492	230	263
Farrell Flat	474	Red clay loam over clay	543	371	173

HART FIELD-SITE GROUP INC – Contact information

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