

HART BEAT

Hart Field Site Group Inc

PO Box 939
CLARE SA 5453

0427 423 154
admin@hartfieldsite.org.au

13th October 2014

ISSUE 31



CARING
FOR
OUR
COUNTRY



HART BEAT

Yield Prophet[®] simulations for 8 sites across the mid-north of SA

The Yield Prophet[®] simulations featured are not a crystal ball, but provide a realistic prediction of the available soil water and nitrogen status of your crop.

We recommend caution when interpreting the Yield Prophet[®] data provided as it is not representative of all paddocks in the areas featured. Differences in sowing dates, variety, soil moisture / soil type, frost events etc. will influence results.



HART EVENTS

Spring Twilight Walk - 21st October 2014

2015

Getting The Crop In seminar – 11th March 2015

Winter Walk – 21st July 2015

Hart Field Day – 15th September 2015

Spring Twilight Walk – 20th October 2015

THIS ISSUE

Hart update: Trial results & Spring Walk details

Definitions

Site information

Hart Beat site reports

- Hart
- Spalding
- Condowie
- Kybunga
- Farrell Flat
- Pinery
- Eudunda
- Tarlee

www.hartfieldsite.org.au

Hart update...

2014 TRIAL RESULTS

**We're taking
pre-orders now!**

If you'd like a **hard copy** of the **2014 Hart Trial Results Book** posted to you when it's released in March '15, you'll need to **pre-order before**

February 15th

(if you didn't already do so at the Hart Field Day).

**Head to our website
to find out more:**

<http://www.hartfieldsite.org.au/pages/trials-results.php>

** A full electronic copy will be available to download from the Hart website - for free!*

HART



Spring Twilight Walk

Tuesday, October 21st

5pm at Hart – free event
(Blyth – Brinkworth Road)

- **Keep nitrogen fertiliser in your soil & out of the air**
Nick Poole, FAR
- **Varieties & agronomy focus; canola, pulses, cereals**
guest speakers from SARDI

To be followed by **BBQ & drinks** in the Hart shed
Kindly supplied by Rabobank Clare

Enquiries:

Sandy Kimber | 0427 423 154 | admin@hartfieldsite.org.au

www.hartfieldsite.org.au

Definitions

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.

Yield probability curves - display two different nitrogen scenarios for each site. The **green line** displays the actual grain yield with the current soil available nitrogen. The **blue line** represents the grain yield potential with unlimited nitrogen (yield potential). A small difference between these two lines indicates the current soil N level is adequate for the crop to reach its yield potential. Conversely, a large difference between these two lines indicates additional N fertiliser is required for the crop to reach its yield potential.

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.

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[®]*.

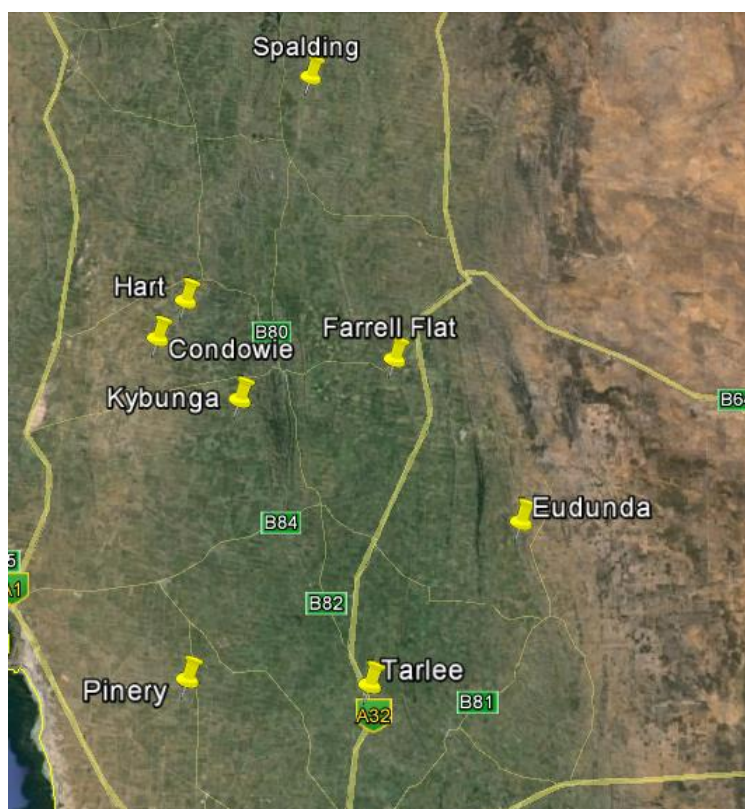
Important Notice: *Yield Prophet[®]* does not generate recommendations or advice, it is only a guide and must be combined with local paddock and district knowledge. APSIM does not take into account weed competition, pest/disease pressure, pesticide / herbicide damage, farmer error, or extreme events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

Site information

Rainfall and water soil characteristics for all sites

Site	Average annual rainfall (mm)	Soil type	Pre-sowing soil nitrogen (0-90cm) (kg/ha)	Plant Available Water Capacity (mm)
Hart	400	Sandy clay loam	94	206
Spalding	430	Red brown earth	108	143
Condowie	350	Sandy loam	64	115
Kybunga	428	Friable clay loam	89	262
Farrell Flat	474	Red clay loam over clay	97	172
Pinery	374	Silty clay loam over clay	98	79
Eudunda	445	Loam over clay loam	86	96
Tarlee	474	Sandy loam over clay on rock	174	113

2014 site locations



SANDY CLAY LOAM

The season so far

Annual rain to date: 392 mm (8 mm since last report)

GSR to date: 281 mm

GSR decile: 5

Current predicted PAW: 28 mm (14% full)

PAWC: 206 mm

Crop growth

Variety: Mace wheat **Sowing date:** 1st May

Nitrogen fertiliser: 30 kg N/ha + 46 kg N/ha

Grain & hay yield predictions

Yield prophet estimate: (Date of report 13/10/2014)

These estimates are based on a 50% probability

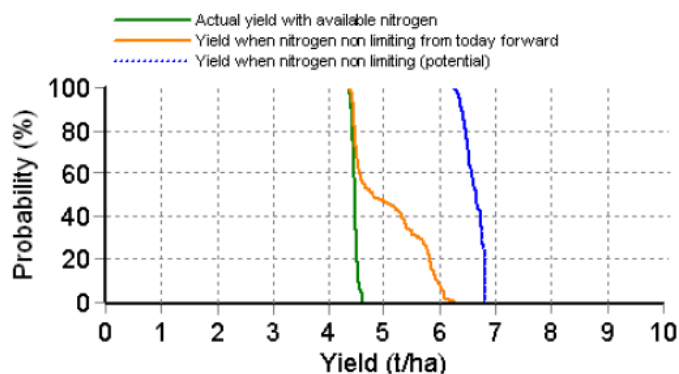
Yield t/ha	Sown 1 st May (see graph)	Change since last report	Sown 20 th May	Change since last report
Grain	5.5	-0.1	3.9	-1.5

French & Schultz grain yield estimate:

100% WUE: 4.1 t/ha, 80% WUE: 3.3 t/ha

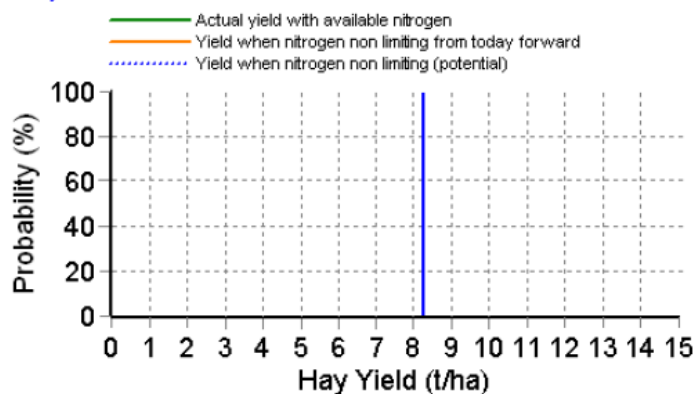
This model assumes that there is 33 mm stored moisture, 110 mm of evaporation and decile 5 (4 mm) rainfall for the rest of the season.

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 (100 yrs) to simulate remainder of the season.

Hay Yield Outcome



SPALDING

RED BROWN EARTH

The season so far

Annual rain to date: 383 mm (17 mm since last report)

GSR to date: 301 mm

GSR decile: 6

Current predicted PAW: 18 mm (13% full)

PAWC: 143 mm

Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2014)

These estimates are based on a 50% probability

Yield t/ha	Sown 1 st May (see graph)	Change since last report	Sown 20 th May	Change since last report
Grain	4.0	-1.4	2.8	-1.3

French & Schultz grain yield estimate:

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

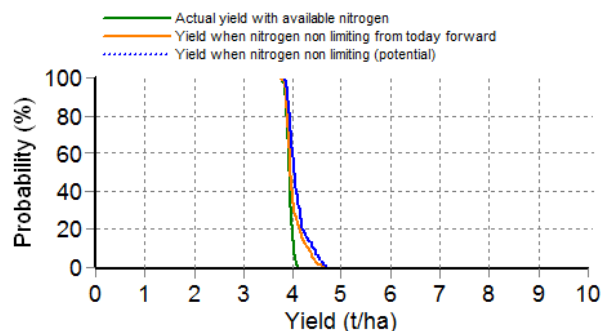
This model assumes that there is 25 mm stored moisture, 110 mm of evaporation and decile 5 (24 mm) rainfall for the rest of the season.

Crop growth

Variety: Mace wheat Sowing date: 1st May

Nitrogen fertiliser: 30 kg N/ha + 46 kg N/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.

CONDOWIE

SANDY LOAM

The season so far

Annual rain to date: 358 mm (9 mm since last report)

GSR to date: 255 mm

GSR decile: 7

Current predicted PAW: 47 mm (41% full)

PAWC: 115 mm

Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2014)

These estimates are based on a 50% probability

Yield t/ha	Sown 1 st May (see graph)	Change since last report	Sown 20 th May	Change since last report
Grain	2.4	-0.7	1.6	-0.7

French & Schultz grain yield estimate:

100% WUE: 3.9 t/ha, 80% WUE: 3.1 t/ha

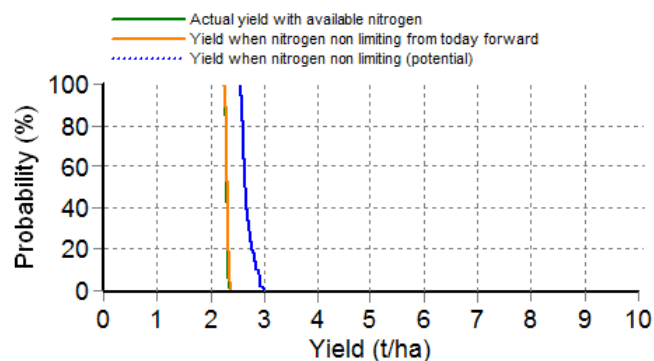
This model assumes that there is 31 mm stored moisture, 110 mm of evaporation and decile 5 (18 mm) rainfall for the rest of the season.

Crop growth

Variety: Mace wheat Sowing date: 1st May

Nitrogen fertiliser: 30 kg N/ha + 46 kg N/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 (100 yrs) to simulate remainder of the season.

CLAY LOAM

The season so far

Annual rain to date: 406.5 mm (4.5 mm since last report)
 GSR to date: 312.5 mm
 GSR decile: 6
 Current predicted PAW: 25 mm (10% full)
 PAWC: 262 mm

Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2014)

These estimates are based on a 50% probability

Yield t/ha	Sown 1 st May (see graph)	Change since last report	Sown 20 th May	Change since last report
Grain	5.4	-0.1	3.9	-1.5

French & Schultz grain yield estimate:

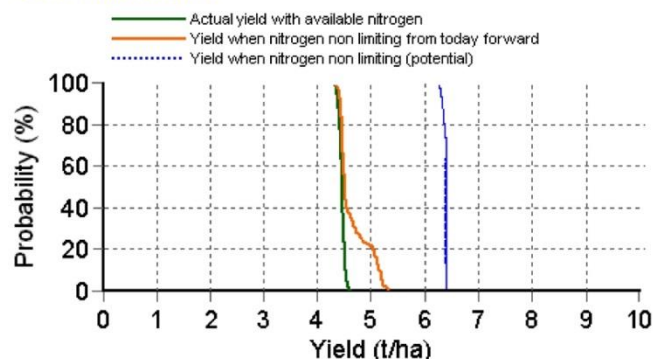
100% WUE: 5.0 t/ha, 80% WUE: 4.0 t/ha

This model assumes that there is 28 mm stored moisture, 110 mm of evaporation and decile 5 (20 mm) rainfall for the rest of the season.

Crop growth

Variety: Mace wheat Sowing date: 1st May
 Nitrogen fertiliser: 30 kg N/ha + 46 kg N/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 (100 yrs) to simulate remainder of the season.

FARRELL FLAT

LIGHT CLAY LOAM

The season so far

Annual rain to date: 485 mm (16 mm since last report)
 GSR to date: 389 mm
 GSR decile: 7
 Current predicted PAW: 28 mm (16% full)
 PAWC: 172 mm

Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2014)

These estimates are based on a 50% probability

Yield t/ha	Sown 1 st May (see graph)	Change since last report	Sown 20 th May	Change since last report
Grain	5.3	-1.1	3.8	-2.0

French & Schultz grain yield estimate:

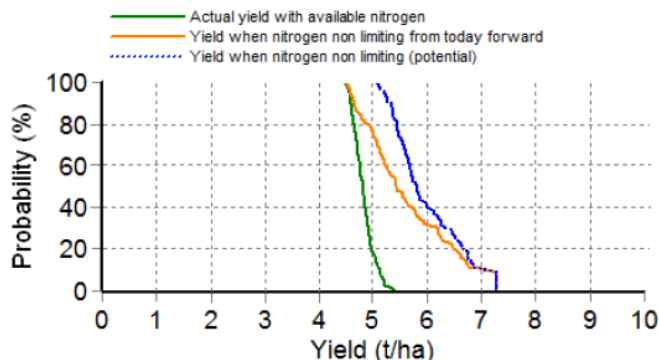
100% WUE: 6.8 t/ha, 80% WUE: 5.6 t/ha

This model assumes that there is 29 mm stored moisture, 110 mm of evaporation and decile 5 (34 mm) rainfall for the rest of the season.

Crop growth

Variety: Mace wheat Sowing date: 1st May
 Nitrogen fertiliser: 30 kg N/ha + 46 kg N/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 (100 yrs) to simulate remainder of the season.

SILTY CLAY LOAM

The season so far

Annual rain to date: 312 mm (6 mm since last report)

GSR to date: 222 mm

GSR decile: 7

Current predicted PAW: 5 mm (6% full)

PAWC: 79 mm

Grain yield predictions

Yield prophet estimate: (Date of report 08/09/2014)

These estimates are based on a 50% probability

Yield t/ha	Sown 1 st May (see graph)	Change since last report	Sown 20 th May	Change since last report
Grain	3.0	-1.0	1.9	-1.0

French & Schultz grain yield estimate:

100% WUE: 3.3 t/ha, 80% WUE: 2.6 t/ha

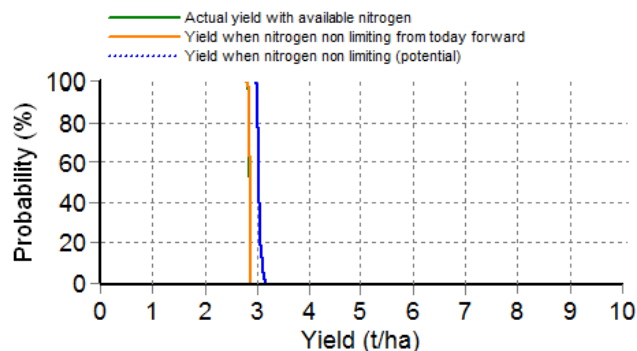
This model assumes that there is 27 mm stored moisture, 110 mm of evaporation and decile 5 (26 mm) rainfall for the rest of the season.

Crop growth

Variety: Mace wheat **Sowing date:** 1st May

Nitrogen fertiliser: 30 kg N/ha + 46 kg N/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 (100 yrs) to simulate remainder of the season.

GRAVELLY LOAM

The season so far

Annual rain to date: 469 mm (13 mm since last report)

GSR to date: 356 mm

GSR decile: 7

Current predicted PAW: 8 mm (8% full)

PAWC: 96 mm

Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2014)

These estimates are based on a 50% probability

Yield t/ha	Sown 1 st May (see graph)	Change since last report	Sown 20 th May	Change since last report
Grain	3.8	-1.4	2.5	-2.4

French & Schultz grain yield estimate:

100% WUE: 5.6 t/ha, 80% WUE: 5.0 t/ha

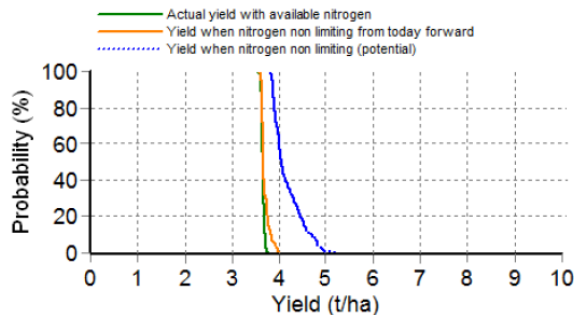
This model assumes that there is 34 mm stored moisture, 110 mm of evaporation and decile 5 (30 mm) rainfall for the rest of the season.

Crop growth

Variety: Mace wheat **Sowing date:** 1st May

Nitrogen fertiliser: 30 kg N/ha + 46 kg N/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 (100 yrs) to simulate remainder of the season.

SANDY LOAM



The season so far

Annual rain to date: 408 mm (8 mm since last report)
 GSR to date: 318 mm
 GSR decile: 5
 Current predicted PAW: 14 mm (12% full)
 PAWC: 113 mm

Grain yield predictions

Yield prophet estimate: (Date of report 13/10/2014)
 These estimates are based on a 50% probability

Yield t/ha	Sown 1 st May (see graph)	Change since last report	Sown 20 th May	Change since last report
Grain	4.2	-0.8	2.6	-2.3

French & Schultz grain yield estimate:

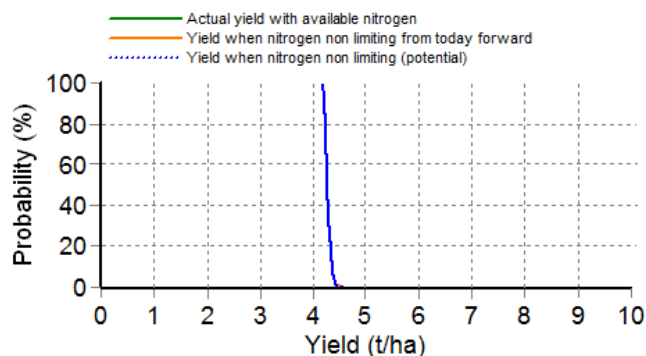
100% WUE: 5.4 t/ha, 80% WUE: 4.3 t/ha

This model assumes that there is 27 mm stored moisture, 110 mm of evaporation and decile 5 (33 mm) rainfall for the rest of the season.

Crop growth

Variety: Mace wheat Sowing date: 1st May
 Nitrogen fertiliser: 30 kg N/ha + 46 kg N/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 (100 yrs) to simulate remainder of the season.

HART FIELD DAY 2014



Barley varieties session



Jess Adamson from Ch7 News Adelaide interviews Hart Field Day guest speaker Dr Robert Fitch



Booloroo Centre farmer Joe Koch shows Hart vice-chairman Damien Sommerville his quad-copter



Hart Field Day 2014