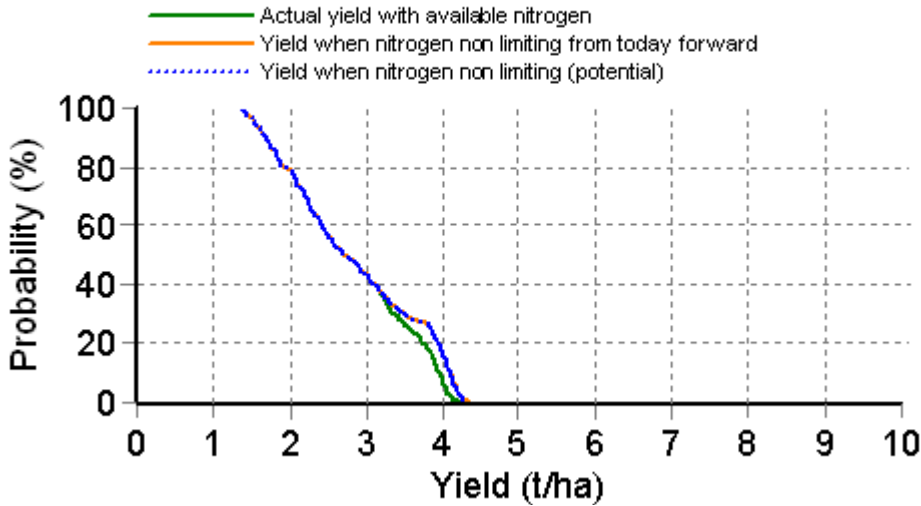


# Crop Report

Report name: Crop Sequence High N Crop Report (Complete)  
 Report date: 29/09/2014  
 Last climate date available: 28/09/2014  
 Client name: EH Graham Centre  
 Paddock name: Crop Sequence High N  
 Report generated by: EH Graham Centre  
 Date sown: 15-May  
 Crop type: Wheat  
 Variety sown: Gregory  
 Sowing density: 150 plants/m<sup>2</sup>  
 Initial conditions date: 09-Apr  
 Soil type: Red Kandosol (No498-Generic)

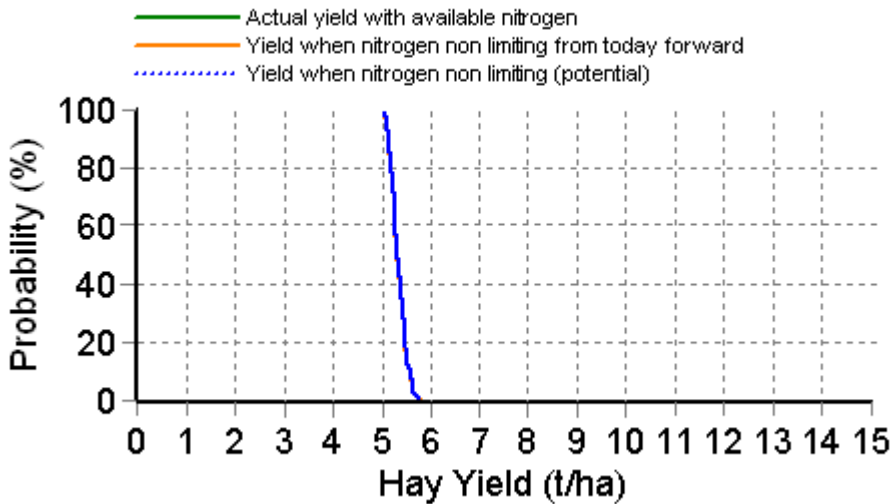
SILO station used: Wagga Wagga AMO  
 Rainfall records used: SILO  
 Temperature records used: SILO  
 Maximum rooting depth: 100 cm  
 Stubble type: None  
 Stubble amount: kg/ha  
 Number of tillage operations: 0  
 Stubble % incorporated into the top 10cm: 0 %  
 Rainfall since 9-Apr: 233.6 mm  
 Date of last rainfall entry: ?  
 Expected maturity date: 23-Nov

## Grain Yield Outcome



This graph shows the probability of exceeding a range of yield outcomes this season. It takes into account your pre-season soil moisture; the weather conditions so far; soil N and agronomic inputs. The long term record from your nominated weather station is then used to simulate what would have happened from this date on in each year of the climate record. The yield results are used to produce this graph.

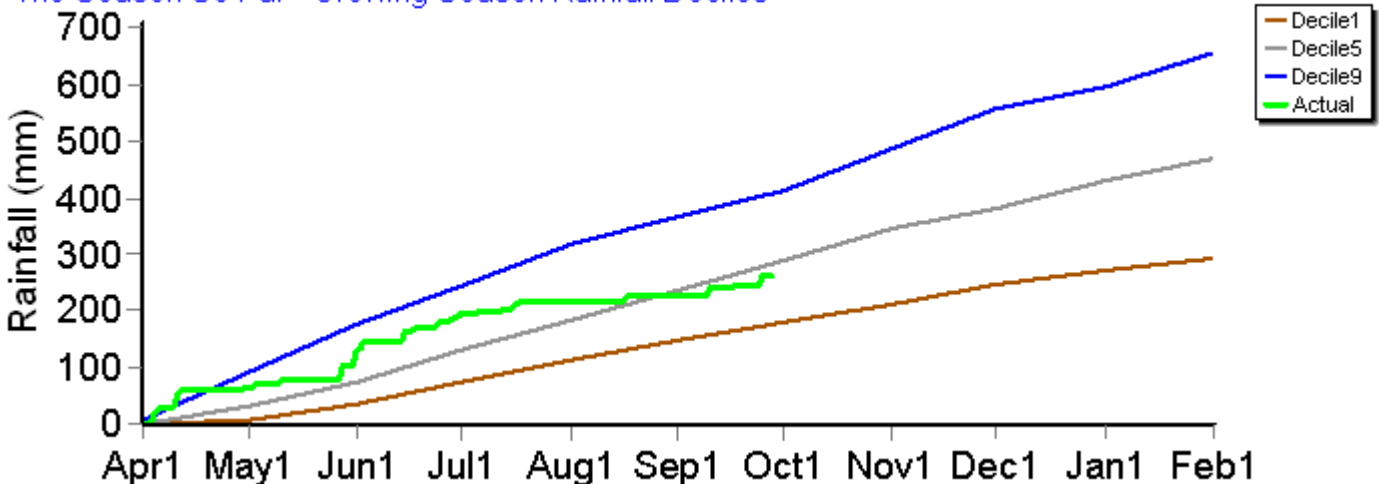
## Hay Yield Outcome



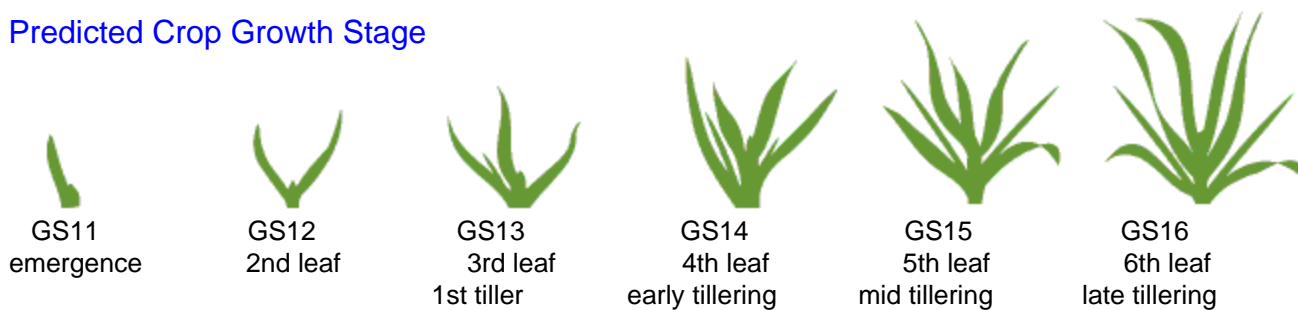
This graph show the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is between 2 and 12t/ha, hay yield is assumed to be between 70 and 75% of dry matter (sliding scale). When dry matter is above 12t/ha, hay yield is assumed to be between 75 and 80% (sliding scale).

Current dry matter: 5859 kg/ha

## The Season So Far - Growing Season Rainfall Deciles

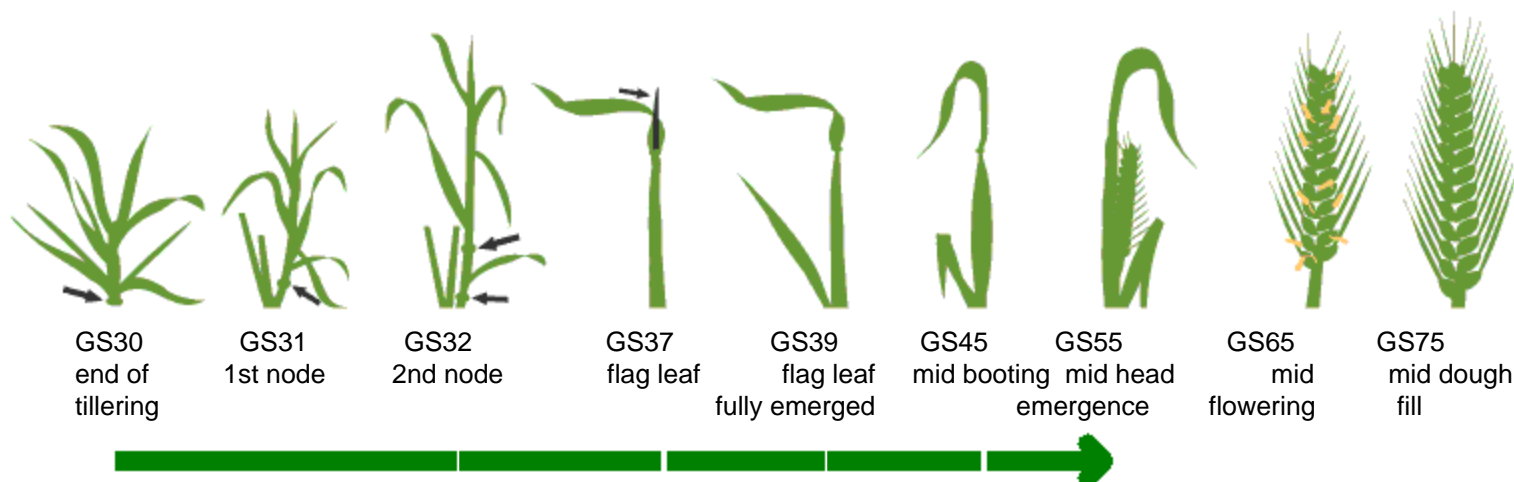


## Simulated and Predicted Crop Growth Stage



### Predicted

<b>Earliest</b>	22-May	6-Jun	16-Jun	26-Jun	8-Jul	19-Jul
<b>Median</b>	22-May	6-Jun	16-Jun	26-Jun	8-Jul	19-Jul
<b>Latest</b>	22-May	6-Jun	16-Jun	26-Jun	8-Jul	19-Jul



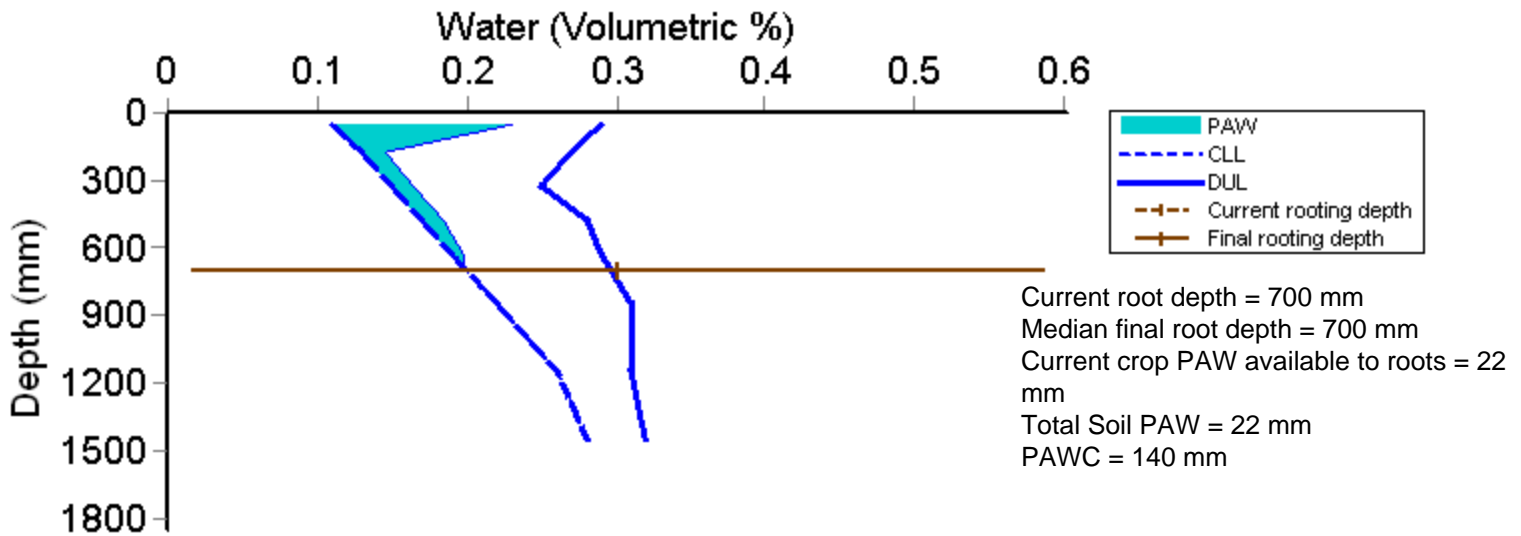
### Predicted

<b>Earliest</b>	18-Aug	21-Aug	26-Aug	8-Sep	12-Sep	21-Sep	30-Sep	8-Oct	23-Oct
<b>Median</b>	18-Aug	22-Aug	26-Aug	8-Sep	12-Sep	21-Sep	1-Oct	11-Oct	28-Oct
<b>Latest</b>	18-Aug	22-Aug	26-Aug	8-Sep	12-Sep	21-Sep	2-Oct	14-Oct	3-Nov

## Probability and Incidence of Frost and Heat Shock

Percentage of years in which frost occurs during flowering		Percentage of years in which heat shock occurs during grain fill (Z70-79)	
<b>Mild</b>		<b>Mild</b>	
Minimum temperature between 2 and 0°C during flowering (Z60-69)	36%	Maximum temperature between 32 and 34°C	36%
<b>Moderate</b>		<b>Moderate</b>	
Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	6%	Maximum temperature between 34 and 36°C	20%
<b>Severe</b>		<b>Severe</b>	
Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	1%	Maximum temperature above 36°	7%
Incidence of frost for this growing season, during flowering		Incidence of heat shock for this growing season, during grain fill (Z70-79)	
<b>Mild</b>		<b>Mild</b>	
Minimum temperature between 2 and 0°C during flowering (Z60-69)	0	Maximum temperature between 32 and 34°C	0
<b>Moderate</b>		<b>Moderate</b>	
Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	0	Maximum temperature between 34 and 36°C	0
<b>Severe</b>		<b>Severe</b>	
Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	0	Maximum temperature above 36°	0

## Current Distribution of PAW



**PAW** = Plant Available Water  
**CLL** = Crop Lower Limit or Wilting Point  
**DUL** = Drained Upper Limit or Field Capacity  
**PAWC** = Plant Available Water Capacity  
**Current Crop PAW** = Soil water currently accessible to the roots down to the current rooting depth  
**Soil PAW** = Total accessible soil water in the soil profile

## Water Budget

Initial PAW status @ 9-Apr	3 mm
Rainfall since 9-Apr	233.6 mm
Irrigations	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
Evaporation since 9-Apr	114 mm
Transpiration since 9-Apr	80 mm
Deep drainage since 9-Apr	0 mm
Run-off since 9-Apr	12 mm

**Current PAW status: 22 mm**

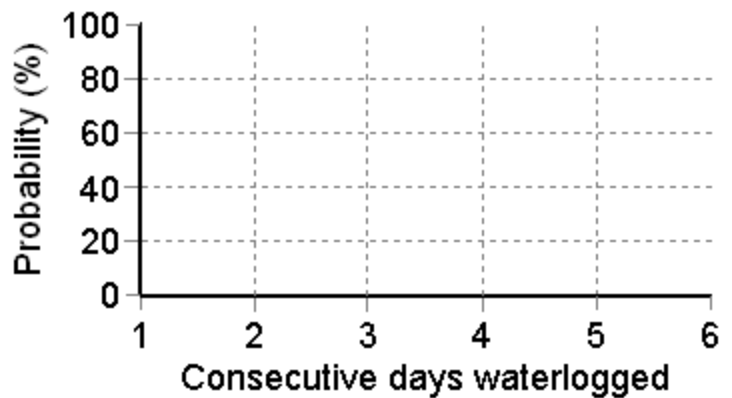
## Nitrogen Budget

Initial N status @ 09-Apr	92 kg/ha
N mineralisation since 09-Apr	4 kg/ha
N tie up since 09-Apr	1 kg/ha
N applications	15-May: 25 kg/ha
	15-Aug: 50 kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
Total N in plant	127 kg/ha
De-nitrification since 09-Apr	3 kg/ha
Leaching	0 kg/ha

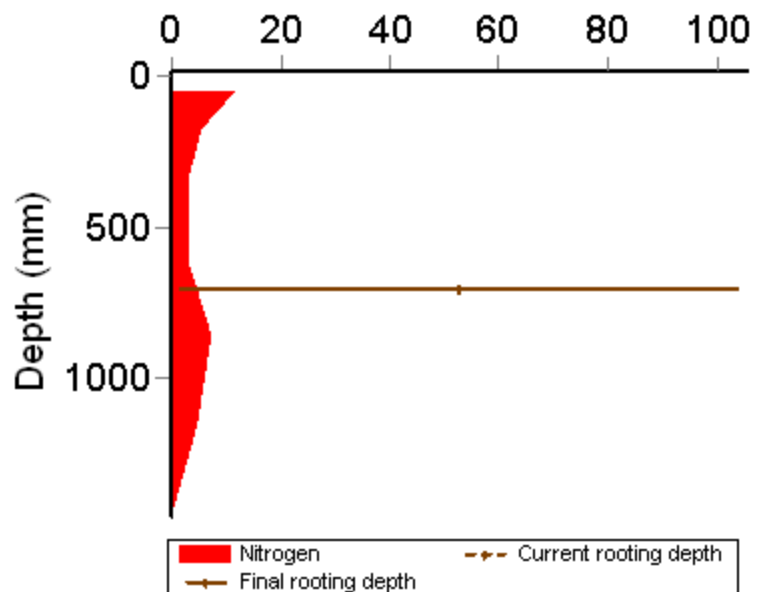
**Current N status: 39 kg/ha**

Median N mineralisation to maturity = 2 kg/ha  
 Median N tie up to maturity = 0 kg/ha

## Probability of Future Waterlogging Events

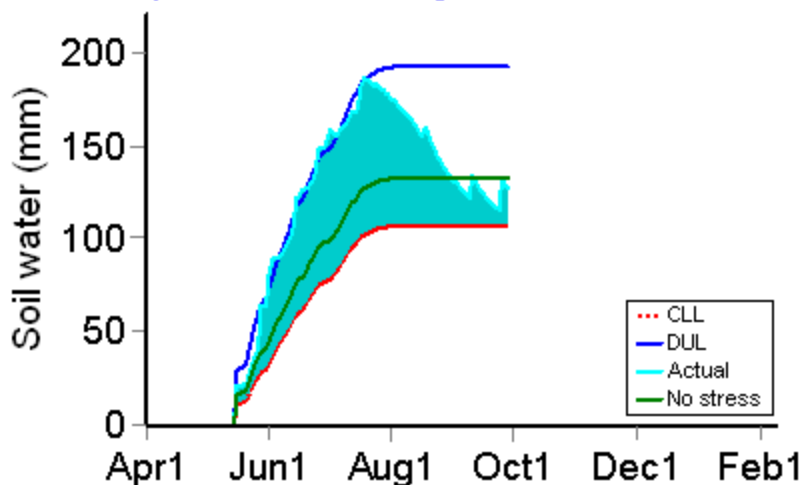


## Current distribution of soil nitrogen (kg/ha)

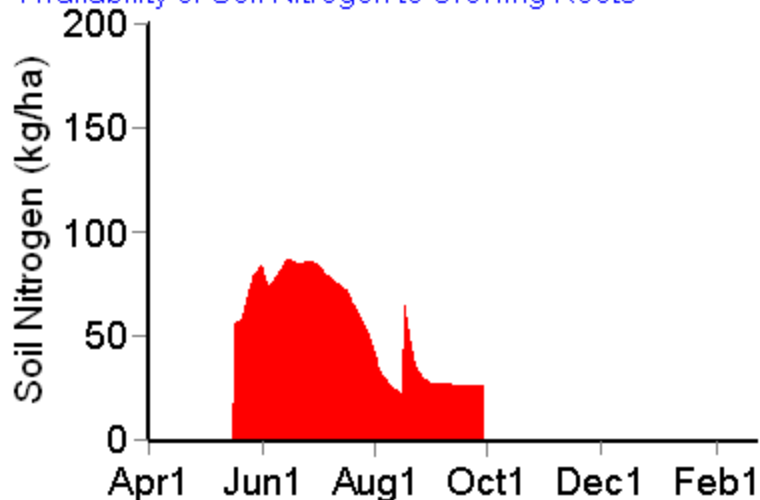


Current Crop Available N = 27 kg/ha  
 Total Soil N = 39 kg/ha

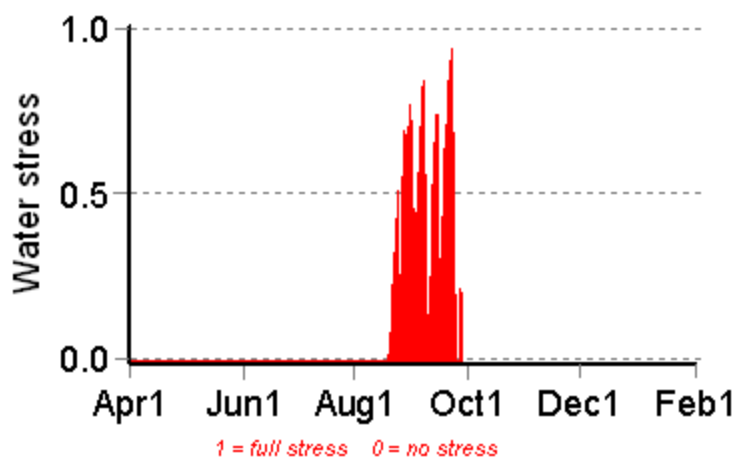
### Availability of Water to Growing Roots



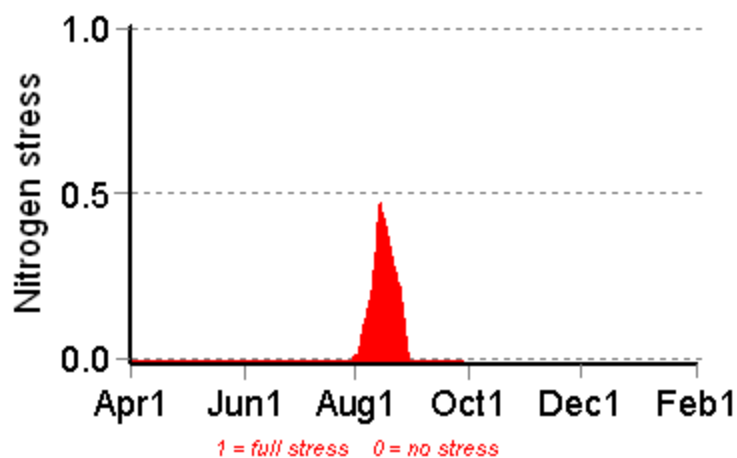
### Availability of Soil Nitrogen to Growing Roots



### Water Stress



### Nitrogen Stress



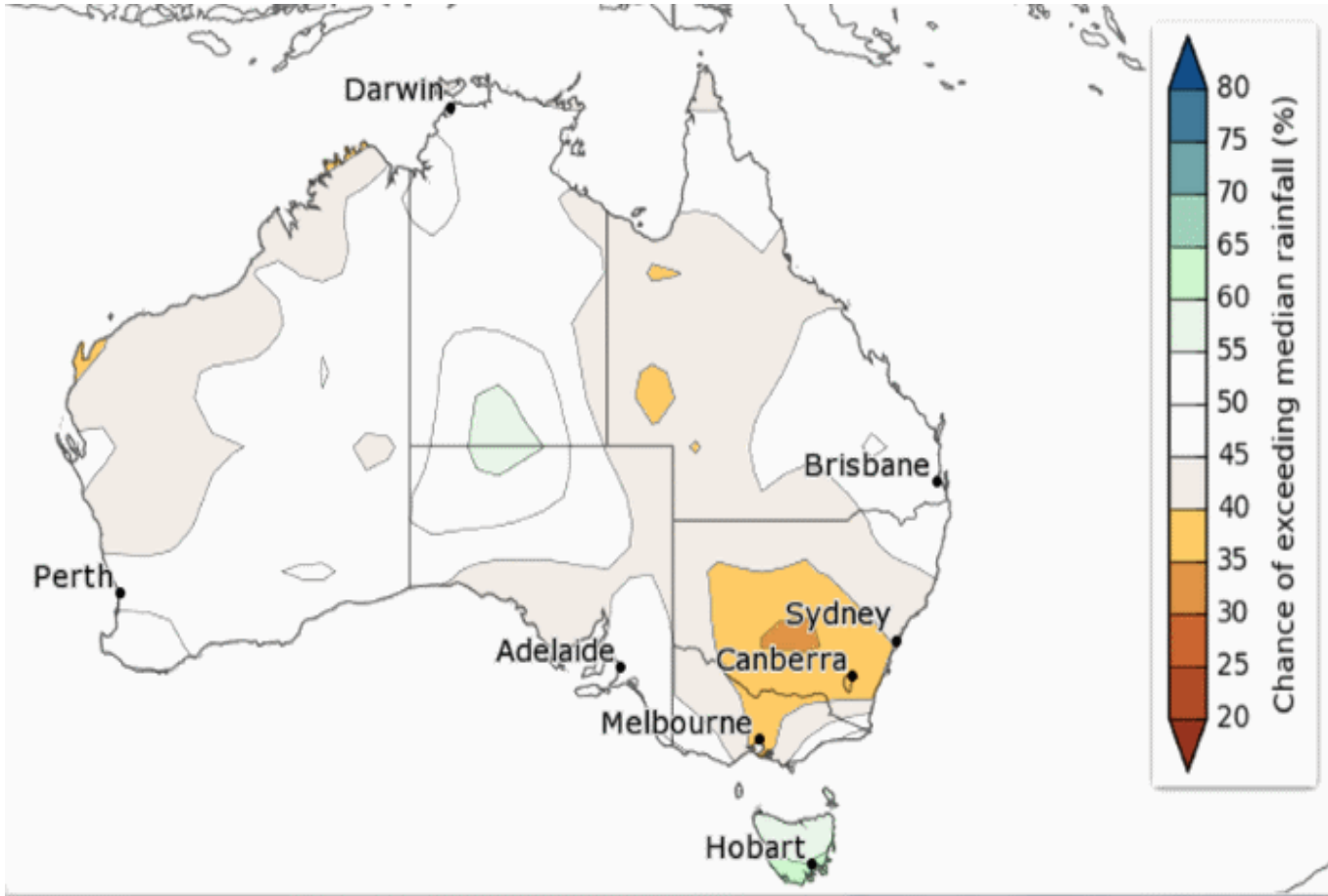
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

### Mean projected crop performance and requirements for the next 10 days assuming no rain and no added fertiliser.

Date	Growth Stage	Evap. (mm)	Water use (mm)	N use (kg/ha)	Water available to roots above stress threshold (mm)	Water available to roots above CLL (mm)	N available to roots (kg/ha)	Mineralisation (kg/ha)	N tie up (kg/ha)	
29-Sep		54.4	0.9	1.0	0.0	-7.6	18.1	26.8	0.0	0.0
30-Sep		55.4	0.9	0.9	0.0	-9.1	16.5	26.8	0.0	0.0
1-Oct		56.4	0.9	0.8	0.0	-10.1	15.5	26.8	0.0	0.0
2-Oct		57.4	0.7	0.8	0.0	-10.6	15.1	26.8	0.0	0.0
3-Oct		58.5	0.7	0.7	0.0	-10.8	14.8	26.8	0.0	0.0
4-Oct		59.4	0.7	0.7	0.0	-9.6	16.0	26.8	0.0	0.0
5-Oct		60.4	0.7	0.7	0.0	-10.1	15.6	26.7	0.0	0.0
6-Oct		61.5	0.8	0.7	0.0	-11.1	14.5	26.7	0.0	0.0
7-Oct		62.6	0.8	0.7	0.0	-11.3	14.3	26.7	0.0	0.0
8-Oct		63.6	0.8	0.7	0.0	-11.6	14.0	26.7	0.0	0.0

The water available to roots above the stress threshold is the amount of PAW (mm) above one third of the total water holding capacity of this soil. If the water values are below this stress threshold the water available to roots above the stress threshold will be negative.

How much rainfall can I expect?  
The Bureau of Meteorology Forecast for the next 3 months



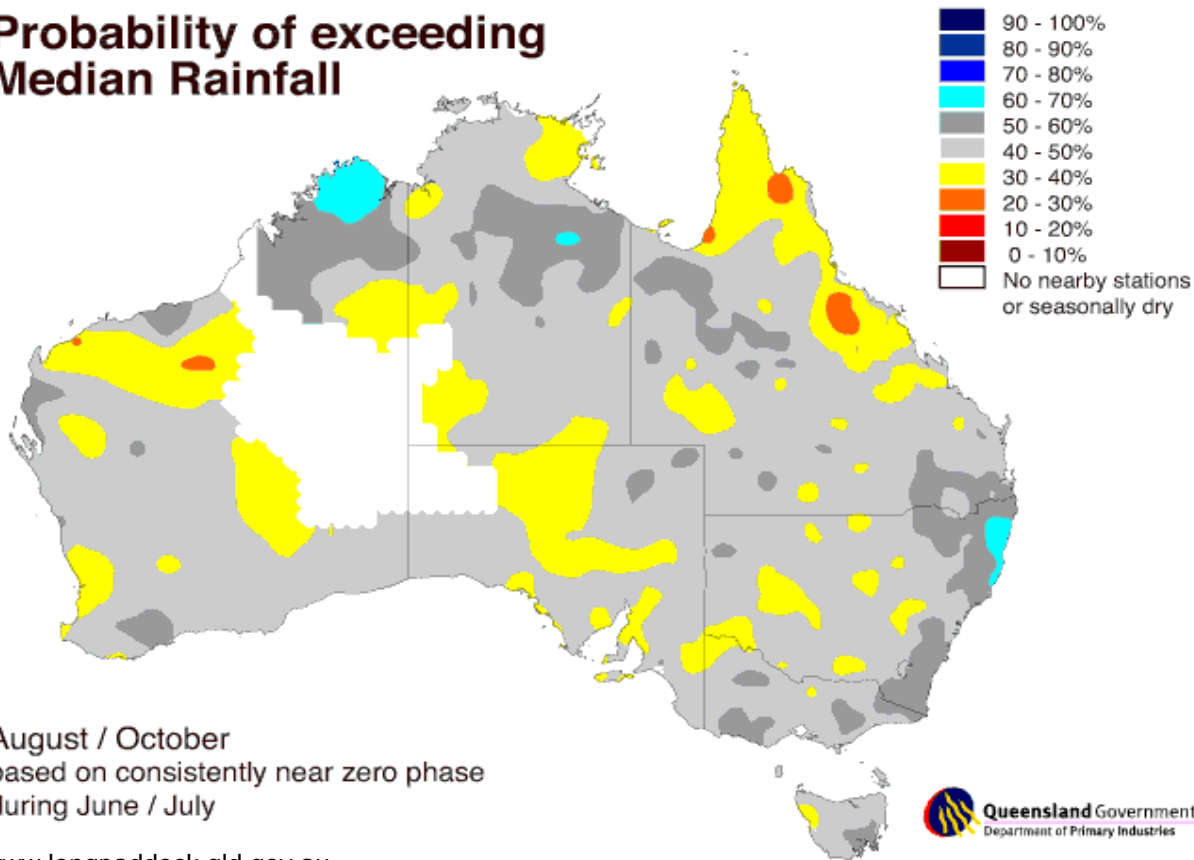
**National Seasonal Rainfall Outlook: probabilities September to November 2014**

Issued by the Bureau of Meteorology 28th August 2014.

For the outlook accuracy map go to: "[http://www.bom.gov.au/climate/ahead/rain\\_ahead.shtml#tabs=Outlook-accuracy](http://www.bom.gov.au/climate/ahead/rain_ahead.shtml#tabs=Outlook-accuracy)"

Queensland Department of Environment and Resource Management (DERM) 3 month rainfall forecast based on the current phase of the SOI

**Probability of exceeding Median Rainfall**



August / October  
based on consistently near zero phase  
during June / July

## SOI Phase and analogue years

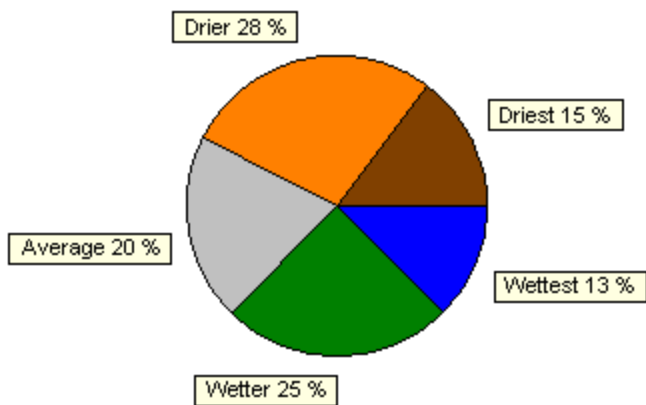
The SOI is currently in the Zero phase. The 31 day mean SOI for July was -4.0. In June the 30 day mean SOI was -0.8.

The years in history with the same SOI phase:

1890, 1891, 1894, 1895, 1897, 1898, 1899, 1903, 1907, 1912, 1913, 1922, 1926, 1927, 1929, 1930, 1931, 1932, 1933, 1935, 1939, 1948, 1949, 1952, 1959, 1961, 1963, 1968, 1969, 1978, 1980, 1984, 1990, 1992, 1995, 1999, 2001, 2003, 2004, 2009

## How much rainfall can I expect?

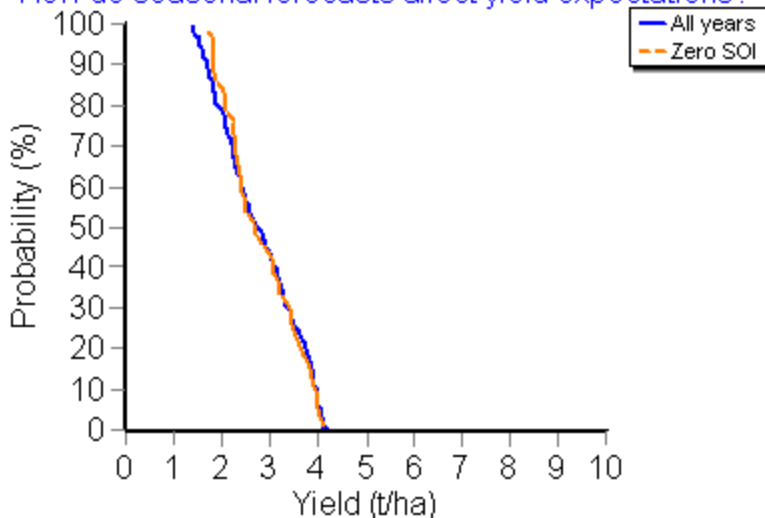
The SOI seasonal forecast for the next 3 months.



The SOI is an index that compares the atmospheric pressure between Tahiti and Darwin. SOI Phases are determined by comparing average monthly SOI values of the past two months. Phases of the SOI have been shown to be related to rainfall variability in a range of locations in Australia and around the world.

	Rainfall
Driest	0 to 76 mm
Drier	76 to 111 mm
Average	111 to 145 mm
Wetter	145 to 198 mm
Wettest	198 to 372 mm

## How do seasonal forecasts affect yield expectations?



The 31 day mean SOI for July was -4.0. In June the 30 day mean SOI was -0.8.

Yield outcomes of the current SOI Phase ARE NOT significantly different from yield outcomes of all years. Significance is determined on a 90% probability threshold. (PValue=0.856)