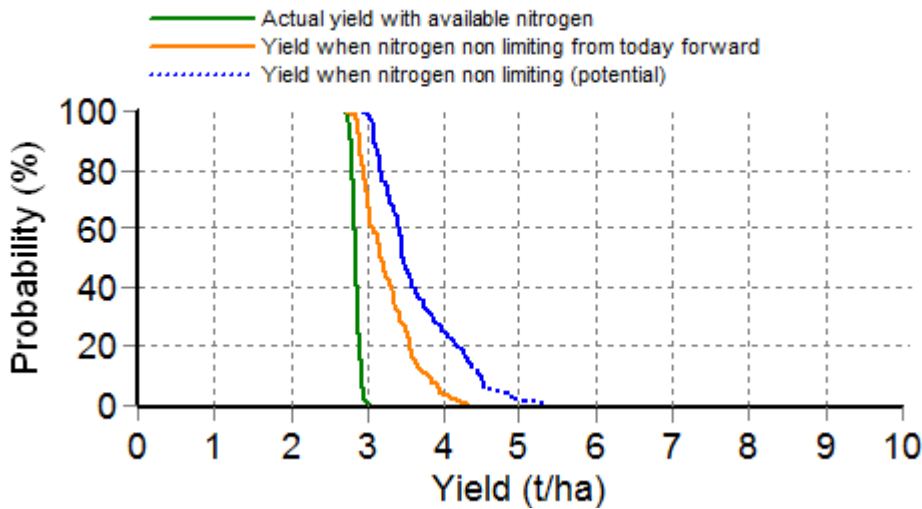


# Crop Report

Report name: Graham Centre Field Site  
 Report date: 27/10/2015  
 Last climate date available: 24/10/2015  
 Client name: EH Graham Centre  
 Paddock name: Graham Centre Field Site  
 Report generated by: EH Graham Centre  
 Date sown: 22-May  
 Crop type: Wheat  
 Variety sown: Gregory  
 Sowing density: 165 plants/m<sup>2</sup>  
 Initial conditions date: 05-Mar  
 Soil type: Red Kandosol (No498-Generic)

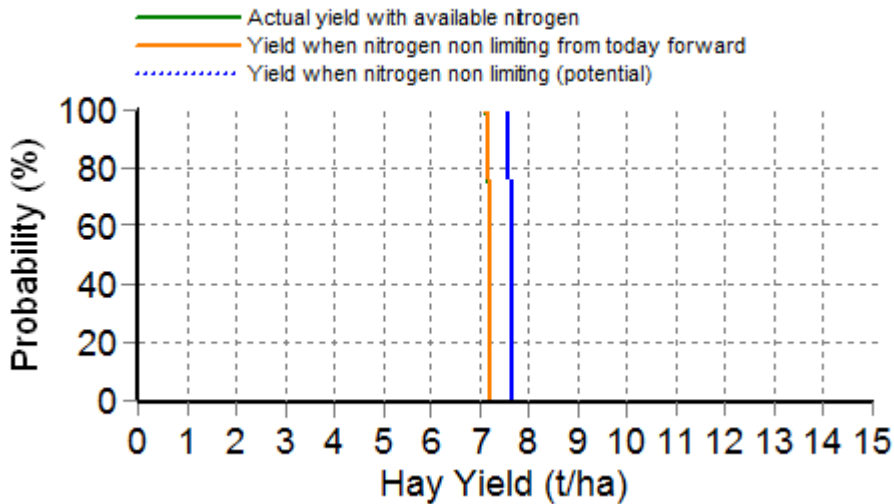
SILO station used: Wagga Wagga AMO  
 Rainfall records used: SILO  
 Temperature records used: SILO  
 Maximum rooting depth: 100 cm  
 Stubble type: None  
 Stubble amount: kg/ha  
 Number of tillage operations: 0  
 Stubble % incorporated into the top 10cm: 0 %  
 Rainfall since 5-Mar: 381.2 mm  
 Date of last rainfall entry: ?  
 Expected maturity date: 22-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.

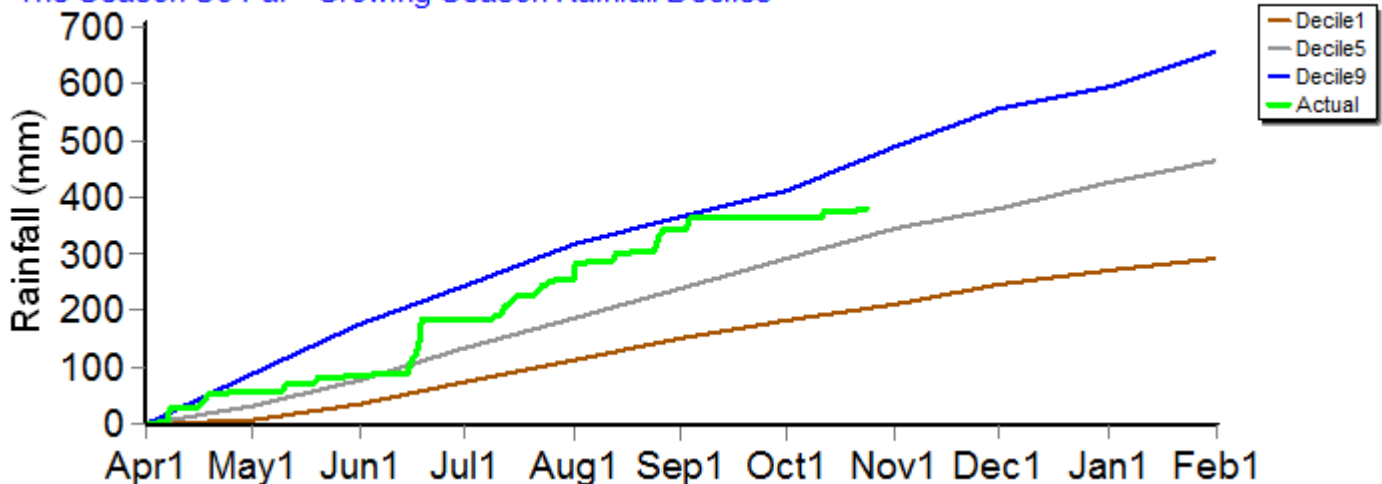
## Hay Yield Outcome



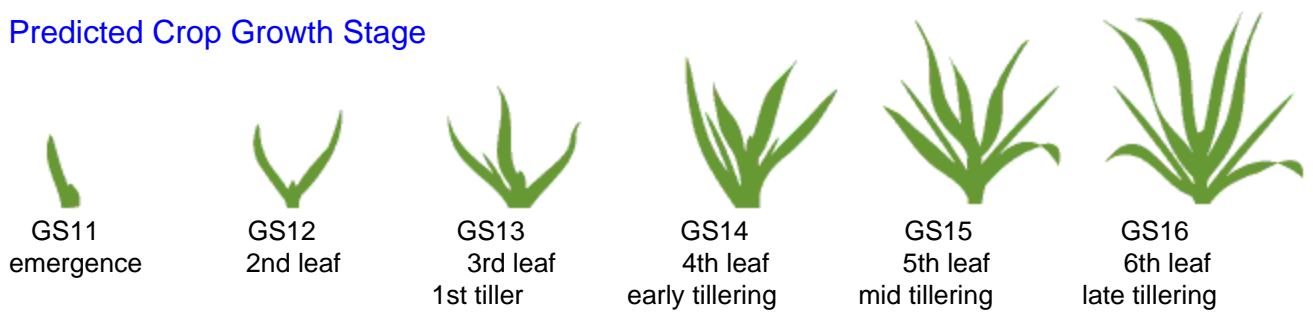
This graph show the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is 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: 9184 kg/ha

## The Season So Far - Growing Season Rainfall Deciles

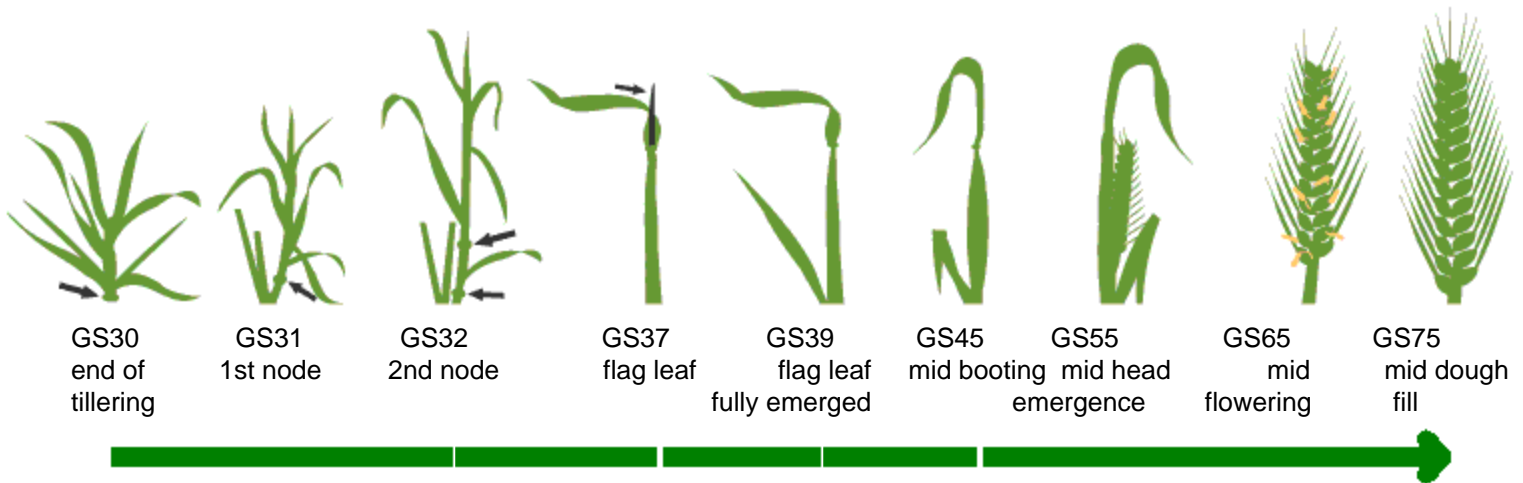


## Simulated and Predicted Crop Growth Stage



### Predicted

<b>Earliest</b>	1-Jun	16-Jun	28-Jun	12-Jul	24-Jul	4-Aug
<b>Median</b>	1-Jun	16-Jun	28-Jun	12-Jul	24-Jul	4-Aug
<b>Latest</b>	1-Jun	16-Jun	28-Jun	12-Jul	24-Jul	4-Aug



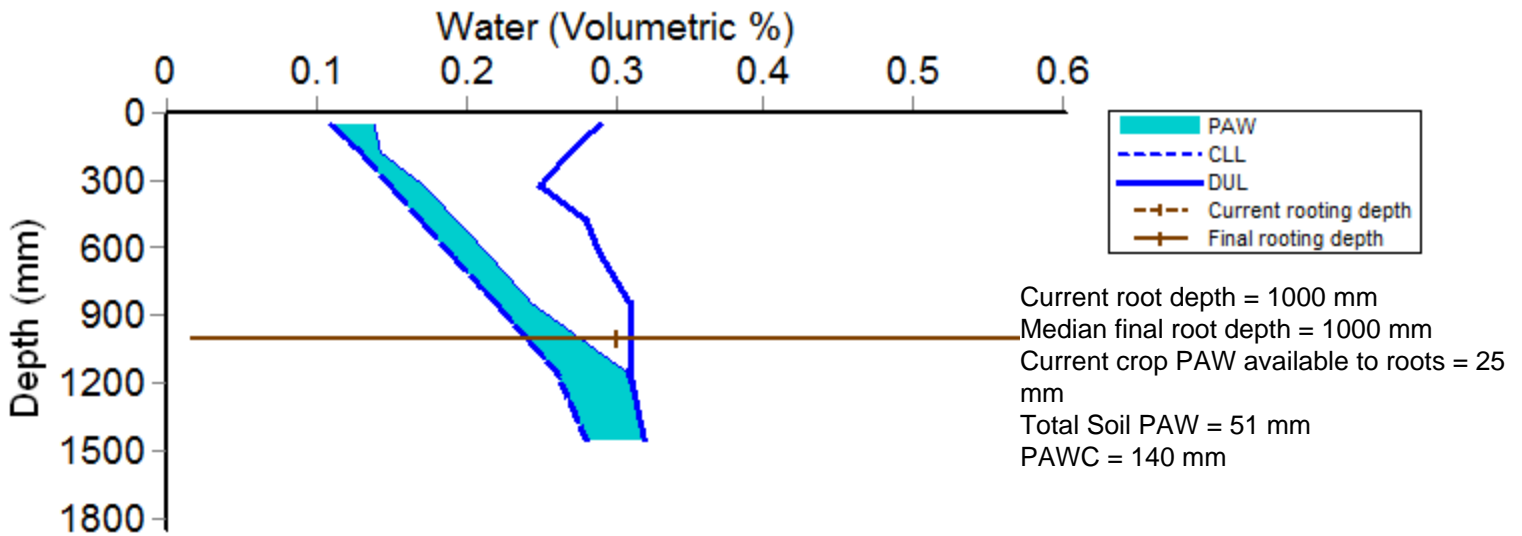
### Predicted

<b>Earliest</b>	27-Aug	29-Aug	3-Sep	15-Sep	20-Sep	28-Sep	7-Oct	13-Oct	26-Oct
<b>Median</b>	27-Aug	30-Aug	4-Sep	15-Sep	20-Sep	28-Sep	7-Oct	14-Oct	27-Oct
<b>Latest</b>	27-Aug	30-Aug	4-Sep	15-Sep	20-Sep	28-Sep	7-Oct	14-Oct	27-Oct

## 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)	0%	Maximum temperature between 32 and 34°C	100%
<b>Moderate</b>		<b>Moderate</b>	
Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	1%	Maximum temperature between 34 and 36°C	15%
<b>Severe</b>		<b>Severe</b>	
Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	0%	Maximum temperature above 36°	4%
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	1
<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 @ 5-Mar	82 mm
Rainfall since 5-Mar	381.2 mm
Irrigations	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
Evaporation since 5-Mar	139 mm
Transpiration since 5-Mar	141 mm
Deep drainage since 5-Mar	88 mm
Run-off since 5-Mar	44 mm

**Current PAW status: 51 mm**

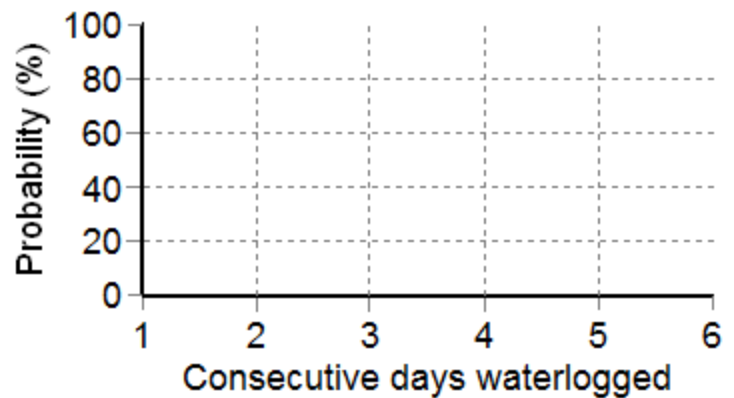
## Nitrogen Budget

Initial N status @ 05-Mar	87 kg/ha
N mineralisation since 05-Mar	14 kg/ha
N tie up since 05-Mar	2 kg/ha
N applications	10-Aug: 50 kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
Total N in plant	108 kg/ha
De-nitrification since 05-Mar	14 kg/ha
Leaching	3 kg/ha

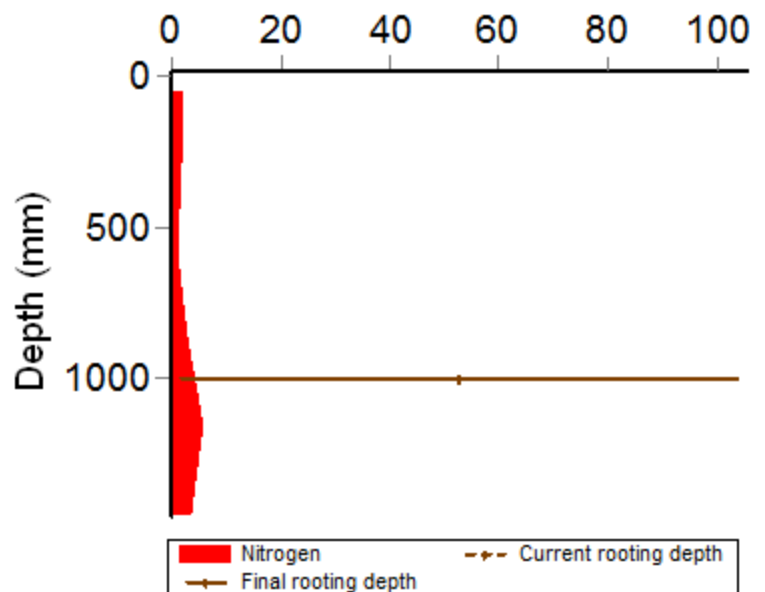
**Current N status: 22 kg/ha**

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

## Probability of Future Waterlogging Events

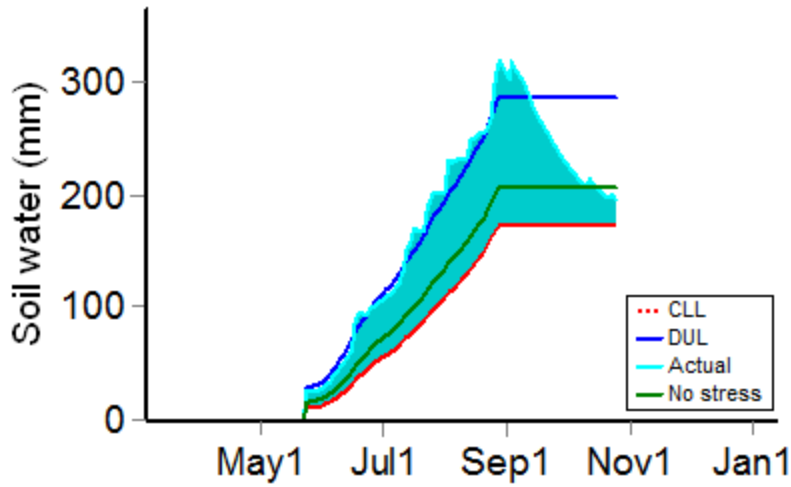


## Current distribution of soil nitrogen (kg/ha)

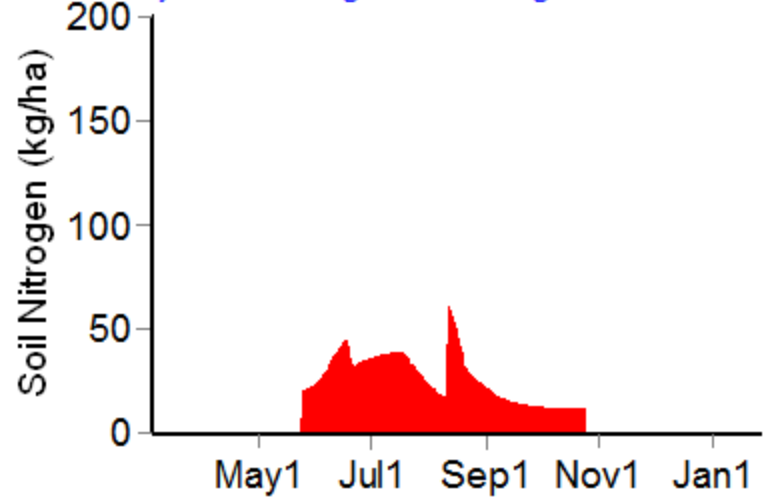


Current Crop Available N = 12 kg/ha  
 Total Soil N = 22 kg/ha

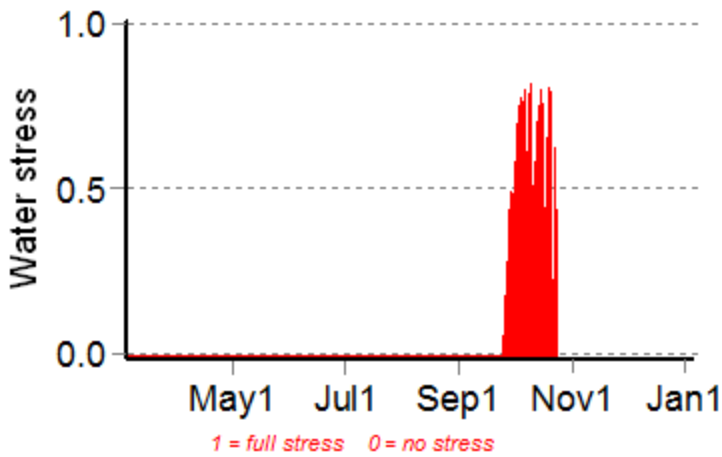
### Availability of Water to Growing Roots



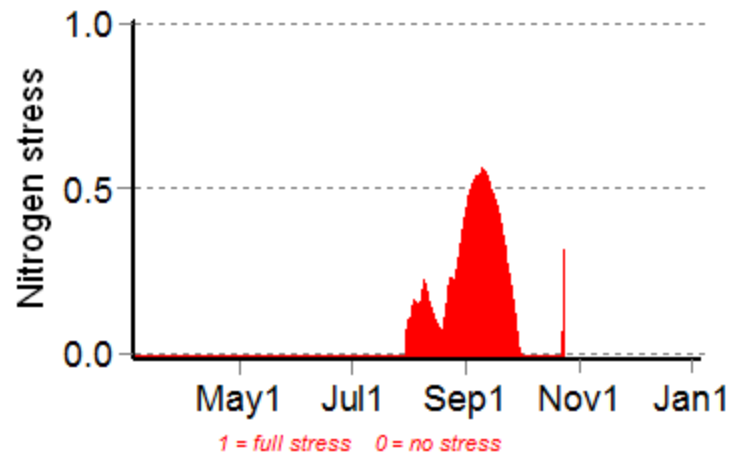
### Availability of Soil Nitrogen to Growing Roots



### Water Stress



### Nitrogen Stress



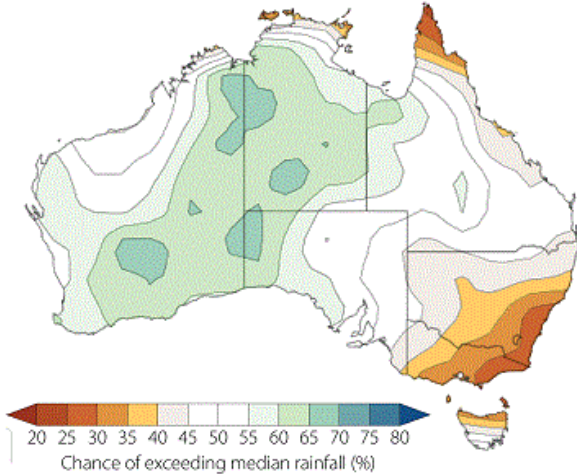
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

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

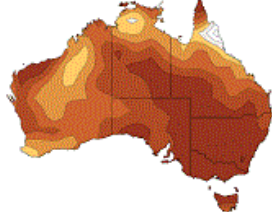
Date	Growth Stage	Evap. (mm)	Water use (mm)	N use (kg/ha)	Water available to roots above stress threshold (mm)	Water available to roots above CLL (mm)	N available to roots (kg/ha)	Mineralisation (kg/ha)	N tie up (kg/ha)
27-Oct	75.9	0.4	0.8	0.0	-14.1	19.7	11.9	0.0	0.0
28-Oct	76.4	0.5	0.6	0.0	-14.4	19.4	11.9	0.0	0.0
29-Oct	76.8	0.5	0.4	0.0	-14.5	19.2	11.9	0.0	0.0
30-Oct	77.3	0.6	0.3	0.0	-14.6	19.1	11.9	0.0	0.0
31-Oct	77.9	0.6	0.2	0.0	-13.9	19.8	11.8	0.0	0.0
1-Nov	78.4	0.6	0.2	0.0	-14.0	19.8	11.8	0.0	0.0
2-Nov	78.9	1.2	0.2	0.0	-14.2	19.5	11.8	0.0	0.0
3-Nov	79.4	1.2	0.1	0.0	-13.3	20.5	11.8	0.0	0.0
4-Nov	79.9	1.2	0.1	0.0	-11.9	21.9	11.8	0.0	0.0
5-Nov	80.4	1.1	0.1	0.0	-11.0	22.8	11.7	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.

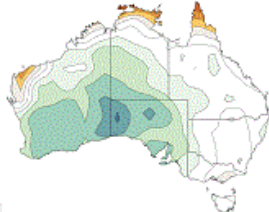
### 3 MONTH CLIMATE OUTLOOK FROM OCTOBER TO DECEMBER



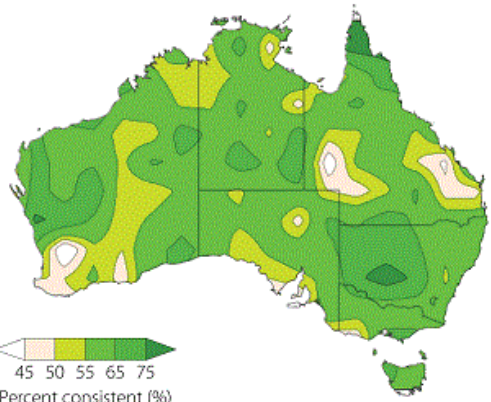
#### OCTOBER CLIMATE OUTLOOK



#### NOVEMBER CLIMATE OUTLOOK



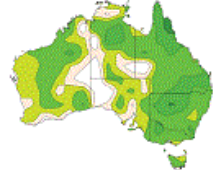
### PAST ACCURACY FROM OCTOBER TO DECEMBER



#### PAST ACCURACY FOR OCTOBER



#### PAST ACCURACY FOR NOVEMBER



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 Bureau of Meteorology  
<http://www.bom.gov.au/climate>

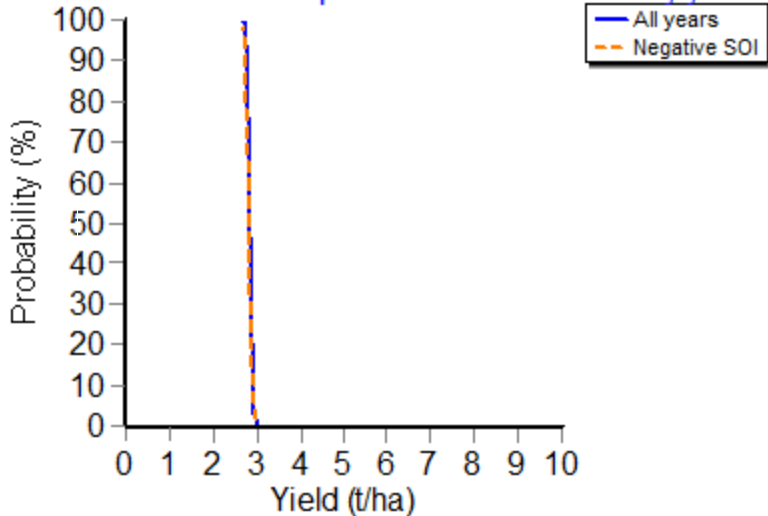
### Southern Oscillation Index (SOI) Phase and Analogous Years

The SOI is currently in the Negative phase. The 31 day mean SOI for August was -19.02. In July the 31 day mean was -13.83

The years in history with the same SOI phase:

1891, 1896, 1911, 1914, 1923, 1925, 1934, 1940, 1941, 1953, 1957, 1965, 1972, 1976, 1977, 1982, 1987, 1990, 1993, 1994, 1997, 2002, 2006

### How does the current phase of the SOI affect my yield exp



Yield outcomes of the current SOI Phase ARE significantly different from yield outcomes of all years. Significance is determined on a 90% probability threshold. (PValue=0.056)

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.